TECHNICAL REPORT 67-20-CM

GESTER TRACES FOR TEXTILE FROM US;

LIBERS OF SOLUTIONS OF EGOAFFORS FOR

VEX VALUE BY EACH ABLLEY FROM TEXTILE FROM TEXTI

Looks I. Walner

PAR PLANTAL SCHOOL AND PAR PLANTAL SCHOOL AND PROPERTY AND

Parisony Rierolique

+ 700 11,75 34 50 a

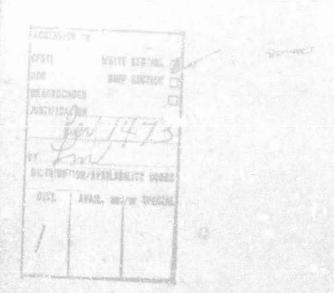
/ ABCHIVE COPY



August 1766



Clarking and Argente Asterials Division



DISTRIBUTION OF THIS DOCUMENT IS UNLINETED.

The findings in this report are not to be constrained as an official Department of the Army position unless so designated by other authorized documents.

Citation of trade names in this report does not constitute an official indorposent or approval of the use of such items.

Destroy this report when no longer needed. We not return it to the originator.

Distribution of this document is unlimited

ΑI)			

TECHNICAL REPORT 67-20-CM

1965

DESIGN TABLES FOR TEXTILE FABRICS:
TABLES OF SOLUTIONS OF EQUATIONS FOR MAXIMUM
WEAVABILITY FABRICS MADE FROM SINGLE FIBER
SPECIES AND BLENDS

DV

LOUIS I. WEINER
Materials Research Branch

August 1.966

Project Reference: 11013001A91A

Series: TS-144

Clothing and Organic Materials Division U. S. ARMY NATICK LABORATORIES Natick, Massachusetts 01760

FOREWORD

The U.S. Army Natick Laboratories, as part of its research mission in the field of Textiles, has extended the pioneering work of F.T. Peirce on fabric geometry to develop equations, graphs, and tables which can be used in the design of practical textile structures. The studies initiated and supported by the Department of the Army since 1952 have translated initial, rather theoretical, concepts of fabric geometry into easily useable engineering design data.

In 1952, E.V. Fainter developed a system for the graphical analysis of plain weave fabrics based on a plot of the basic Peircean equations for the plain weave.

In 1957, D.F. Adams, E.R. Schwarz, and S. Backer developed a nomographic solution of the geometric relationships in the plain weave.

The first attempt to extend the work of Peirce to fabrics other than the plain weave was accomplished in 1955 by L. Love, who derived the equations for maximum weavable cotton fabrics and plotted graphs which could be used in design.

In 1964, L.T. Weiner and J.E. Johnston, Jr., making use of a GE 225 Computer, tabled the equations for maximum weavable cotton fabrics, covering a practical range of variables for the plain, 3-, 4-, and 5-harness, and the oxford weaves.

In the present report the generalized solutions of the maximum weavable equations are derived and tabled for a broad spectrum of yarn bulk densities; this now permits the design of fabrics made from any of the textile fiber species in use today and any blend of them.

In making these tables available, we hope to assist the textile fabric designer in the rather difficult problem of designing maximum weavable textile structures, and also to encourage further studies of the relationship between fabric geometry and fabric performance. We wish to acknowledge the contributions made to the Army studies of fabric geometry by the above-named individuals and contributions of many others in this country and abroad who have worked toward the simplification of a rather complex textile geometry. Appreciation is expressed to the Data Analysis Office of the U.S. Army Natick Laboratories for the use of their computer and to Mr. David Gracia of the Data Analysis Office for writing the program for solutions to the equations.

ATC COMME

S. J. KENNEDY Director Clothing & Organic Materials Division

APPROVED:

DALE H. SIELING, Ph.D. Scientific Director

W. M. MANTZ Brigadier General, U.S.A. Commanding

CONTENTS

		Page
Abs	tract	vi
1.	Purpose and scope	1
2.	Theoretical background and previous techniques	2
3.	Computation and organization of the three tables	2
	 a. Tarn bulk density table for fibers (Table I) b. Yarn bulk density table for blends of the important commercial fibers (Table II) 	2
	c. Maximum weavability table (Table III)	4
4.	Use of Tables I and II	6
5.	How to use Table III	6
6.	Examples of use of tables	9
	 a. Design of fabrics made from one type of fiber only b. Design of fabrics made from a blend of two fibers c. To determine percentage of maximum weavability d. To determine weavability or practicality of a given loom construction 	9 10 12 14
7.	Basic assumptions and limitations of the tables	14
8.	References	16
App	endix: Derivation of the general maximum weavability equations for the plain, twill and sateen weaves for yarns of varying bulk densities	17

LIST OF TABLES

		Page
I.	Bulk densities of yarns, computed from fiber densities	49
II.	Yarn bulk densities of blends of the important commercial fibers	53
III.	Maximum weavability table: Maximum filling cover factor in terms of warp cover factor and beta factor	63
	Plain weave fabrics	65
	Three-harness weave fabrics	112
	Four-harness weave fabrics	161
	Five-harness weave fabrics	215
	Oxford fabrics	277

ABSTRACT

This report contains in tabular form the solutions of the maximum weavability equations for the plain, oxford, 3- and 4-harness twills, and 5-harness sateen in terms of warp and filling cover factors and yarn number ratio (beta) for fabrics made from any fiber species and from blends. The tables are set up for yarn bulk densities ranging from 0.54 to 4.6; this includes fibers as light as polyethylene and as heavy as stainless steel. Supplementary tables are provided giving yarn bulk densities (assuming a standard packing coefficient of 0.59) for all of the commercial fibers and for blends of the most important commercial fibers in increments of 5% ranging from 5% to 95% blend composition.

TABLES OF SOLUTIONS OF EQUATIONS FOR MAXIMUM WEAVABILITY FABRICS MADE FROM SINGLE FIBER SPECIES AND BLENDS

1. Purpose and Scope

a. Purpose

The tables in this report are presented to facilitate the designing of high-texture or maximum-weavable fabrics. Maximum-weavable fabrics are the largest class of functional fabrics used by industry and the military. Among many weaves they include: ducks, poplins, wind-resistant twills and sateens, airplane and balloon cloths, and linings. In designing maximum-weavable fabrics it is always of concern to the designer to know whether his fabric is practical in terms of the capacity of the loom to put in the necessary picks.

The purpose of these tables is to eliminate the need for direct computation or for graphical techniques previously used for obtaining the solution of maximum weavability problems. For the first time, the tables provide the solutions to the maximum weavability equations for fabrics made from any type of fiber or from blends. These tables augment those published in Textile Series Report No. 128 (1), which can be used only for cotton fabrics.

b. Scope

This report contains in tabular form the solution of the equations for maximum weavability fabrics for the plain, oxford, 3- and 4-harness twills, and 5-harness sateen for yarn bulk densities equivalent to polyethylene on the low side and to stainless steel on the high side and including all the commercial textile fibers and blends of the most common textile fibers in increments of 5% from 5% to 95% blend composition.

The maximum weavability tables (Table III) in this report provide solutions over a warp cover factor range of from 8 to 62 inclusive (on a sliding scale depending upon yarn bulk density), at intervals of 1, and over a beta factor range of from 0.5 to 2.0 at intervals of 0.1, where design data are given in terms of yarns per inch and warp or filling yarn number, cover factors and beta factors may be obtained from tables in Textile Series Report No. 128 (1) or computed from equations (4), (5), or (6) given in 3c below.

In addition, two tables are presented which provide a means of obtaining the yarn bulk density when this information is not otherwise available. One of these tables (Table I) gives the standard fiber density for every commercial textile fiber and the equivalent yarn bulk density computed on the assumption of a standard packing coefficient of 0.59. Table I may also be used for any experimental fiber having a fiber density equivalent to that of a given commercial fiber. The second of these tables (Table II) gives the yarn bulk densities of blends of the most important of the commercial fibers. The blends are tabled in 5% increments from 5% to 95% blend composition.

2. Theoretical Background and Previous Techniques

The findings of Peirce have been considered basic in the design and development of fabric structures. The equations of Peirce (2) for the plain weave were published in graphical form by Painter (3), and also in nomographic form, by Backer, Adams and Schwarz (4). Finally, Love (5) extended Peirce's equations to weaves other than the plain, and developed a series of graphs to simplify the prediction of construction parameters of maximum weavability fabrics. Weiner and Johnston (1) solved and tabled the Love equations for a range of cover factors from 10 to 32 and over a beta factor range from 0.5 to 2.0.

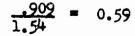
3. Computation and Organization of the Tables

a. Yarn bulk density table for fibers (Table I)

Ideally it would be desirable to know the exact bulk density of yarns comprising textile fabrics, in order to obtain the maximum design accuracy from the maximum weavability tables in this report. It is difficult, but not impossible to obtain a fair approximation of yarn bulk density. The weight of a given length of yarn may be obtained with considerable precision, as can the length of yarn itself. However, because of the inherent compressibility and "hairiness" of many yarns, it is difficult to obtain a realistic measurement of yarn diameter (or yarn area) which is needed to compute the bulk density. Despite the difficulties, many methods have been used with reasonable success to obtain such measurements, including microscopic, seriplane, thickness gauge and Peirce's roving twist technique.

Most workers (5, 6) conventionally follow Peirce's recommendations for cotton fabrics of .909 gm/cm³ as a standard yarn bulk density for design work.

Since the density of cotton fiber is 1.54, the degree of "packing" can be considered to be the ratio of the yarn bulk density to the fiber density, or:



This value of 0.59 which is called the <u>packing factor</u> or packing coefficient has been standardized (6) for fibers other than cotton and on this basis may be used to compute the yarn bulk density from the fiber density of any fiber.

Thus: fiber density x packing coefficient = yarn bulk density or

For mylon (Der of 1.14), for example, if we assume a packing coefficient of 0.59 we get as the yearn bulk density:

$$1.14 \times .59 = .67$$

The yarn bulk density table was prepared in this manner. Thus, the first step to take in designing a maximum weavable fabric, from say, Acrilan, in the absence of experimental data on yarn bulk density, would be to look up its bulk density in Table I.

b. Yarn bulk density table for blends (Table II)

Table II provides for blends of the most common fibers the same information contained in Table I for single fiber yarns. Blend proportions are from 5% to 95% in 5% increments.

The values in Table II were obtained from the solution of the equation:

Dey
$$\frac{0.59}{A}$$
 (Yarn bulk density of blends for (2)
$$\frac{De_{1}}{De_{1}}$$
 Def2

Where De = the bulk density of the blended yarn

Defl = fiber density of fiber #1

Def2 = fiber density of fiber #2

A = percentage of blended fiber #1 expressed as a decimal

A sample calculation for a blend of 25% mylon and 75% cotton would be as follows:

$$De_y = \frac{0.59}{.25 + (1-.25)} = .84$$

In Table II the fiber density of one of the component fibers is given at the nead of the first column with the percentage of that fiber (from 5% to 95%) given below it. The headings of the following seven columns give the fiber densities of the ther component fibers, and the values in the body of the table are yarn bulk densities. For the problem solved above by Equation (2) turn to section of Table II showing fiber density of 1.14 (for nylon) in first column: drop down to 25 (the percentage of nylon in blend) in first column, go across this row (25) to value under column headed 1.54 (fiber density of cotton); this will give bulk density of 0.84.

If necessary, linear interpolation may be used for other blend percentages or fiber densities.

c. Maximum weavability table (Table III)

Table III ("Maximum filling con r factor in terms of warp cover factor and Beta factor") shows the maximum filling cover factor (K₂) that is theoretically obtainable for a given combination of warp cover factor and beta factor. The filling cover factors for the various yarn bulk densities and weaves were obtained by the solutions of the following equations, the derivation of which is given in the Appendix.

PLAIN WEAVE
$$M = 1$$
 $\sqrt{1 - \left[\frac{29.2\sqrt{De}}{(1+\beta)K_1}\right]^2} + \sqrt{1 - \left[\frac{29.2\sqrt{De}}{(1+\beta)K_2}\right]^2} = 1$

THREE HARNESS WEAVES $M = 1.5$ $\sqrt{1 - \left[\frac{M\left(\frac{31.4\sqrt{De}}{K_1} - 1\right) + 1.08}{1.08(1+\beta)}\right]^2} + \sqrt{1 - \left[\frac{M\left(\frac{31.4\sqrt{De}}{K_2} - 1\right) + 1.08}{1.08(1+\beta)}\right]^2} = 1$

FOUR HARNESS WEAVES $M = 2.0$ $\sqrt{1 - \left[\frac{M\left(\frac{32.7\sqrt{De}}{K_1} - 1\right) + 1.12}{1.12(1+\beta)}\right]^2} + \sqrt{1 - \left[\frac{M\left(\frac{32.7\sqrt{De}}{K_2} - 1\right) + 1.12}{1.12(1+\beta)}\right]^2} = 1$

FIVE HARNESS WEAVES $M = 2.5$ $\sqrt{1 - \left[\frac{M\left(\frac{33.6\sqrt{De}}{K_1} - 1\right) + 1.15}{1.15(1+\beta)}\right]^2} + \sqrt{1 - \left[\frac{M\left(\frac{33.6\sqrt{De}}{K_2} - 1\right) + 1.15}{1.15(1+\beta)}\right]^2} = 1$

OXFORD WEAVE $M_1 = 2.0$ $M_2 = 1.0$ $\sqrt{1 - \left[\frac{M_1\left(\frac{32.7\sqrt{De}}{K_1} - 1\right) + 1.12}{1.12(1+\beta)}\right]^2} + \sqrt{1 - \left[\frac{29.2\sqrt{De}}{(1+\beta)K_2}\right]^2} = 1$

where M = Number of yarns per repeat of weave Number of interlacings per repeat of weave

27230mm

Cover factors or beta factor may be computed from the following equations:

$$K_1 = \frac{n_1}{\sqrt{N_1}}$$
 [Warp cover factor equation] (4)

where K₁ is warp cover factor

nl is warp texture or yarns per inch
Nl is warp yarn number or "count"

$$K_2 = \frac{n_2}{\sqrt{N_2}}$$
 [Filling cover factor equation] (5)

where K₂ is filling cover factor

n₂ is filling texture or yarns per inch
N₂ is filling yarn number or "count"

$$B = \sqrt{\frac{N_1}{N_2}} \qquad \qquad \text{[Beta factor equation]} \qquad (6)$$

where B is Beta factor or yarn balance N₁ is warp yarn number N₂ is filling yarn number

^{*}Throughout this report subscript 1 refers to warp and subscript 2 refers to filling.

If yarns are numbered in systems other than the "cotton" system, they should be converted to the cotton system in order to use Table III.

In Table III warp cover factors range from 8 to 62 (depending on yarn density), and beta factors from 0.5 to 2.0. In order to simplify the programming and print-out, non-valid values (because of K_1 being too low) are indicated by zeros ("0") in the table. This does not mean that the numerical value of K_2 is zero. The zero should be read as a blank space.

For each of the yarn bulk densities, ranging from .54 to 4.6, there is a section for each of the five weave types. The maximum filling cover factor values are given to one decimal place, which is quite adequate precision for textile design work. Interpolation may be used for fractional values of warp cover factor.

4. Use of Tables I and II

Tables I and II merely provide the essential value of yarn bulk density which indicates the correct location in Table III to enter (each page of Table III has yarn bulk density at the top) to obtain the solution appropriate to the fiber type or blend of which the fabric is composed.

5. How to Use Table III

Table III is the one from which the usefulness of this report derives. Table III is presented primarily as the solution of the equation for filling cover factor (see paragraph 3c) when warp cover factor, beta factor and yarn bulk density are known. (It can also be read for a solution when <u>any three</u> elements are given or required, to find the fourth.)

Perhaps the easiest way to visualize the relationship of these four elements of Table III and how they are obtained is by considering this tabulation:



Element of Table III	Obtainable from	If you have	
Yarn Bulk Density (De)	1. Actual physical measurement		
	2. Table I (for single fiber)	Fiber name or fiber density	
	3. Table II (for blends)	Blend composition	
Warp Cover Factor (K1)	1. Equation 4 $(n_1/\sqrt{N_1})$ or 2. TSR #128 (Table I)*	W yarn number and W texture	
Filling Cover Factor (K ₂)	1. Equation 5 $(n_2/\sqrt{N_2})$ or 2. TSR #128 (Table I)*	F yarn number and F texture	
Beta Factor (B)	1. Equation 6 $(\sqrt{N_1/N_2})$ or 2. TSR #128 (Table II)*	W yarn number and F yarn number	

is chame.

Knowledge of any three of the four "elements" listed above will provide the necessary information for obtaining the fourth from Table III. However, in the conventional design of fabrics the yarn bulk density, warp cover factor, and Beta factor are usually known first or computed and the filling cover factor is the unknown factor which is usually sought.

Text...e Series Report No. 128 [reference (1)] provides the solution of the cover factor equations (4) and (5) and the Beta factor equation (6) for a wide range of yarn numbers and textures.

The textile designer normally has access to the information in the far right column above; this enables him to make the preliminary calculations or to check in Tables I and II to obtain the yarn bulk density to enter Table III. Thus, if he is looking for the greatest number of filling yarns of a given size which car be used for a given weave type, he will know:

- (1) the fiber density or blend composition which will then give him the yarn bulk density
- (2) the warp yarn number and warp texture which will provide the warp cover factor
- (3) the filling yarn number, which with the warp yarn number will provide the beta factor

Using the above three items, he can secure from Table III the maximum filling cover factor.

The maximum filling texture can be obtained by solution of the following equation:

$$n_2 = K_2 \sqrt{N_2}$$
 [Maximum filling texture equation] (7)

where n₂ is filling texture, or yarns per inch
K₂ is filling cover factor

N2 is filling yarn number

Maximum filling texture can also be obtained from TSR No. 128

In addition to thus obtaining the requirements for maximum weavable constructions, it is possible to find what percentage of maximum weavability any construction is. That is, divide the actual filling cover factor by the theoretical filling cover factor. This percentage may be expressed on the basis of either filling cover factor or filling texture.

Also, given a particular construction, the textile designer can determine its <u>practicality</u>. That is, he can determine from the table whether or not it is weavable, without trial weavings.

Given a particular construction, the fabric designer can, by using Table III, determine whether it can be tightened to any extent.

Finally, given certain filling parameters, such as yarn size and texture, it is possible to project certain <u>combinations</u> of warp sizes and textures.

6. Examples of Use of Tables

Since Tables I and II are incidental to the use of Table III, they will not be discussed separately but as an integral part of the discussion of each problem presented in this section. However, it may be well to provide some general information on the role of yarn bulk density before proceeding with specific examples.

Ideally, it would be desirable to know the exact yarn bulk density of the yarns going into the fabric, by means of microscopic or some other type of objective measurement rather than using the approximations of Tables I and II. Where a given yarn is used in many different constructions it may be advisable to go through the mechanics of measuring the actual yarn density. It is recognized that measuring errors may in some instances be as large as estimating errors because of the difficulty in getting a realistic indication of yarn diameter. However, it is important to be aware of differences if they do exist, in the event that actual loom experience yields results that differ somewhat from the predictions of Table III.

Despite the advantages that may accrue from actual yarn density measurements, the busy designer will probably rely more on Tables I and II to obtain the necessary values for entering Table III; the problems below will be based upon this assumption.

a. Design of fabrics made from one type of fiber only

Problems of this type involve the design of a maximum weavable fabric which is made wholly from one type of fiber, such as Arnel or Orlon.

Given: fiber type, filling yarn number, warp yarn number, texture and weave

To find: number of picks for maximum weavable construction

Problem: What are the maximum number of picks of yarn number 19/1 cotton count Orlon that can be woven into a poplin having 106 ends of 40/2 Orlon.

Solution:

Step 1. Find the yarn bulk density of Orlon in Table I; it is 0.67.

Step 2. Find warp cover factor for the 106 ends of 40/2 yarn. First convert 40/2 to 20/1 (cover factor

Step 2. cont'd.

computation is based upon singles equivalents). Obtain warp cover factor using equation (4) where $K_1 = n_1/\sqrt{N_1}$, substituting: $106/\sqrt{20} = 23.702$. Or look it up on page 94 of TSR No. 128.

- Step 3. Find Beta factor for yarns, using equation (6) Beta = $\sqrt{N_1/N_2}$ = $\sqrt{20/19}$ = 1.026. Or look it up on page 138 of TSR No. 128.
- Step 4. Find maximum filling cover factor.

 Turn to Table III for plain weave fabrics (poplin is a plain weave) and yarn bulk densities of 0.67.

 The intersection of "beta factor" (top column) of 1.0 (closest value to 1.026) and row 24 "warp cover factor" (far left) gives "maximum filling cover factor" of 12.1.
- Step 5. Compute maximum filling texture using equation (7): $n_2 = K_2 \sqrt{N_2}$, substituting: 12.1 $\sqrt{19} = 53$. Or look it up on page 95 of TSR No. 128.

b. Design of fabrics made from a blend of two fibers

This problem concerns the design of maximum weavable fabrics made from an intimate blend of two fibers such as nylon and cotton or polyester and cotton.

Given: fiber types, blend composition, filling yarn number, warp yarn number, warp texture and weave.

To find: number of picks for maximum weavable construction

*If it is desired to obtain increased precision, interpolation may be used with the fractional beta factor and the fractional cover factor obtained from the computations in Steps 2 and 3, respectively. In this particular problem, the interpolation would be of no value with respect to warp cover factor, since the equivalent filling cover factor is identical for warp cover factors of 23 and 24. Interpolation for the beta value of 1.026 would increase the maximum filling cover factor to 12.23 or 12.2 in three significant figures. Accordingly, it is suggested that interpolation be ignored for first approximations.

Problem: How many picks/inch must be used in a fabric having 150 ends of 36° yarn to obtain maximum weavability. Solve for both 36° and 25° filling yarns; and for plain and 3-harness weaves. Assume yarns are blended and contain 25% of nylon and 75% of cotton.

24/5/90

- Step 1: Determine density of blended yarn from Table II. Go down column one (headed "fib. den. = 1.14," i.e., fiber density of nylon) to row 25 (% of nylon in yarn). Move across row to value under column headed 1.54 (density of cotton); this gives 0.84. Thus, the yarn density of the blended yarn is .84.
- Step 2: Compute cover factor of warp, using Equation (4).

$$K_1 = m_1 / \sqrt{N_1} = 150 / \sqrt{36} = 25$$

Or look it up in TSR No. 128.

Step 3: Compute Beta factor for both yarn combinations, using Equation (6)

$$B = \sqrt{N_1 / N_2} = \sqrt{36 / 36} = 1$$
$$= \sqrt{36 / 25} = 1.2$$

Or look it up in TSR No. 128.

- Step 4: Go to section of Table III covering Plain Weaves and yarn bulk density of .84

 For Warp cover factor of 25 and Beta of 1, the maximum filling cover factor is 13.5.

 For Warp cover factor of 25 and Beta of 1.2, the maximum filling cover factor is 14.7.
- Step 5: Go to section of Table III covering 3-harness weaves and yarn bulk density of .84.

 For Warp cover factor of 25 and Beta of 1,

the maximum filling cover factor is 17.0. For Warp cover factor of 25 and Beta of 1.2. the maximum filling cover factor is 18.2.

Step 6: Compute maximum filling texture (picks per inch) from cover factor, using equation (7), $n_2 = K_2 \sqrt{N_2}$ Or look it up in TSR No. 128.

Values of no are given in the following tabulation:

	Plain Weavo	3-Harness Weave		
36 ⁸	$n_2 = 13.5 \sqrt{36}$	$n_2 = 17.0\sqrt{36}$		
	= 81	= 102		
25 8	$n_2 = 14.7 \sqrt{25}$	$n_2 = 18.2 \sqrt{25}$		
	= 74	= 91		

Thus, for the plain weave, as we go to the coarser filling yarn (36s to 25s) there are fewer picks that can be woven into the fabric for maximum weavability (81 vs. 74). The same holds true for the 3-harness weave. We can weave 102 picks of the 36s yarn, but only 91 of the 25s yarn.

However, in going from the plain weave to the 3-harness weave it takes more picks to fill the weave. Thus for the 36^S yarn we must increase the number of picks from 81 to 102; and for the 25^S yarn we must increase the number of picks from 74 to 91.

c. To determine percentage of maximum weavability

Problem:

- (1) A Type III wind-resistant <u>all-cotton</u> oxford has a specified texture of 136 by 46. If a 40/2 warp yarn is available, what percent of maximum weavability will be obtained if we use a 12/1 filling?
- (2) If we use the same "size" warp and filling yarns, but made of a <u>blend</u> of 50% Dacron and 50% cotton, what will be the percent of maximum weavability?

(1) Solution

For all-cotton fabric:

First convert 40/2 to 20/1

Step 1: Find yarn bulk density of cotton in Table 1 as .91.

Sel Same

- Step 2: Find warp cover factor by using equation (4) or from TSR No. 128; it is 30.4,
- Step 3: Find filling cover factor by using equation (5) or from TSR No. 128; it is 13.3.
- Step 4: Compute Beta factor, using equation (6) or obtain from TSR No. 128; it is 1.3.
- Step 5: Find maximum possible filling cover factor in Table III for oxford weaves and yarn bulk densities of .91. This value is 15.9.
- Step 6: To obtain percent maximum weavability:

Divide actual filling cover factor (13.3) by computed maximum filling cover factor (15.9) to obtain 83.6 as percent of maximum weavability.

(2) Solution

For Dacron-cotton blend:

- Step 1: Find yarn bulk density of a 50% Pacron 50% cotton blend from Table II as .86.
- Step 2: Find warp cover factor of 30.4 as above.
- Step 3: Find filling cover factor of 13.3 as above.
- Step 4: Find Beta factor of 1.3 as above.
- Step 5: Find maximum possible filling cover factor in Table III for oxford weaves and yarn bulk densities of .86. This value is 15.4.
- Step 6: To obtain percent maximum weavability:

Divide actual filling cover factor (13.3) by computed maximum filling cover factor (15.4) to obtain 86.4 as percent of maximum weavability.

Thus, even though the cotton yarns and the Dacron/cotton blended yarns used in this example were both the same "size" in terms of yarn number (which is a measure of linear density), actually the blended yarn has a larger diameter because of the lower density of the Dacron constitutent. Thus, keeping yarn numbers and textures constant, the blended yarns will produce a fabric with a higher percentage of maximum weavability.

d. To determine weavability or practicality of a given loom construction

Problem: Is a sateen fabric weavable if it has 129 ends of 31/1 polypropylene yarn in the warp and 94 picks of 14/1 polypropylene yarn in the filling?

Solution:

- Step 1: Find warp and filling cover factors: 23.2 and 25.1 respectively.
- Step 2: Find Beta factor: 1.5.
- Step 3: Find Maximum Filling Cover factor in section of Table III for 5-harness weaves and for polypropylene yarn bulk density of .54. This is 19.0.

Since the cover factor desired (25) is <u>larger</u> than the theoretical maximum (19), this fabric would not be weavable. It is interesting to note that a fabric with the same construction characteristics as this could be woven from cotton yarns. Thus, it is erroneous to anticipate that the fiber composition of a fabric can always be changed without also changing the texture and/or the yarn sizes.

7. Basic Assumptions and Limitations of the Tables

Three assumptions were made in developing the equations that led to the formulation of these tables:

- a. The yarn compression in a fabric woven to maximum tightness produces a change in the shape of the yarn section but does not alter the fiber packing density.
- b. Complete flattening takes place in that half of the yarn that is in contact with a neighboring yarn under a single float (see Appendix).
- c. The packing coefficient of yarns made from all fibers and blends is 0.59.

If yarns are numbered in systems other than the "cotton" system, they should be converted to the cotton system in order to use these tables.

For all practical purposes, these assumptions produce only minimal errors and thus the tables are suitable for first-order approximations in fabric design. For designers who work with a few types of fibers or blends it might be useful to check the yarn bulk densities of the yarns they work with, since twist and other factors may alter the yarn bulk density values given in Tables I and II. If actual yarn bulk density values are available, then the only important limitations on the validity of these tables and the equations from which they were derived are the first two assumptions (a and b) listed above.

8. References

- 1. Weiner, L.I. and Johnston, J.E. Jr., Design Tables for Cotton Fabrics: Tables of Solutions of Equations for Cover Factor, Beta Factor and Maximum Weavability for Cotton Fabrics, Textile Series Report 128, U.S. Army Natick Laboratories. Natick, Mass., Aug 1964.
- 2. Peirce, F.T., The Geometry of Cloth Structure, J Textile Inst., 28, T45 (1937).
- Painter, E.'., Graphical Analysis of Fabric Geometry, Part VIII
 of: Mechanics of Elastic Performance of Textile Materials,
 Textile Res J, 22, 556 (1952).
- 4. Adams, D.P., Schwarz, E.R. and Backer, S., Nomographic Solution of the Geometric Relationships in Cloth Geometry, Part VI of: The Relationship Between the Structural Geometry of a Textile Fabric and its Physical Properties, Textile Series Report 93, QM R&D Command, Natick, Mass., Feb 1957.
- Love, L., Oraphical Relationships in Cloth Geometry for Plain, Twill and Sateen Weaves, Textile Series Report 90, QM R&D Command, Natick, Mass., Sept 1955.
- 6. Dickson, J.F., Practical Loom Experience on Weavability Limits, Textile Res J. 24, 1083 (1954).

APPENDIX*

DERIVATION OF THE GENERAL MAXIMUM WEAVABILITY EQUATIONS FOR THE PLAIN, TWILL AND SATEEN WEAVES FOR YARNS OF VARYING BULK TENSITIES

^{*}Originally published as:

Material Examination Reports No. 8316 (9 Sept 1965) and No. 8320 (10 March 1966), by Louis I. Weiner, U.S. Army Natick Laboratories, Natick, Mass.

DERIVATION OF THE GENERAL MAXIMUM WEAVABILITY EQUATIONS FOR THE PLAIN, TWILL AND SATEEN WEAVES FOR YARNS OF VARYING BULK DENSITIES

INTRODUCTION

The steps leading to the derivation of the general maximum weavability equations are presented in five sections of this report titled as follows:

- I Derivation of K_0 (procedure of Ball¹).
- II Derivation of the maximum weavability equation for the plain weave (procedure of Peirce²).
- III Derivation of the equations for local spacing in twills and sateens.
 - IV Derivation of K_g (max) and maximum weavability equations for other weave types (procedure of Love³).
 - V Derivation of the generalized maximum weavability equations for all fiber species and blends.

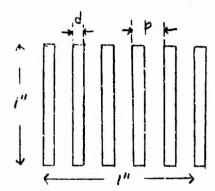
I. DERIVATION OF Ko

It is customary for textile designers to express the "cover" of a woven textile fabric by means of a computed "cover factor" which is

designated by the letter "K". K is derived from fractional coverage as follows:

Fractional coverage $(\frac{d}{p})$:

The cover of a fabric can be expressed as "fractional coverage" which is the ratio of the area "covered" by yarns to the total area of the fabric. For a given fabric direction (warp or filling), fractional coverage may be visualized as the projected area divided by the total area as shown below:



- d = diameter of each
 yarn in inches.
- p = inches/yarn (this
 is called the "spacing"
 and includes a "space"
 and a "yarn diameter")
- n = yarns/inch

For 1 in 2 of fabric, the fractional coverage of either the warp or filling is:

fractional coverage =
$$\frac{yarns/inch \times d'' \times l''}{1 \text{ in}^2} = \frac{nd \times l}{l}$$

numerically fractional coverage = yarns/inch x d" = nd

yarns/inch =
$$\frac{1}{\text{inches/yarn}}$$
 or n = $\frac{1}{p}$ (1)

therefore nd
$$\frac{d}{p}$$
 (2)

The conventional expression for fractional coverage is
$$\frac{d}{p}$$
 (3)

Because of the difficulties encountered in measuring the diameter of yarns it has become customary for textile technologists to use yarn number (N)*, which is easily calculable, in expressions where yarn diameter (d) is normally required.

^{*} N = number of 840 yard hanks per pound or N = $\frac{1}{840w}$

Cover factor (K):

Yarn diameter (d) varies as the reciprocal of the square root of yarn number (N) for the indirect system (which is the system used almost exclusively in this country for staple yarns).

Thus
$$d \propto \frac{1}{\sqrt{N}}$$
 (4)

therefore
$$\frac{d}{p} \propto \frac{\frac{1}{\sqrt{N}}}{p}$$
 (5)

From Equation (1)

$$p = \frac{1}{n}$$
 where $n = yarns/inch$

therefore fractional coverage = (constant)
$$\frac{n}{\sqrt{N}}$$
 (6)

and
$$\frac{\text{fractional coverage}}{(\text{constant})} = \frac{n}{\sqrt{N}}$$
 (7)

The ratio on the left above is designated as cover factor or K, and thus:

$$K = \sqrt{\frac{n}{N}}$$
 (8)

The maximum value of " (designated as K_0) is obtained when d/p = 1, in other words when the projected area of the yarns in the fabric equals the total area. However, as will be seen later in the derivation of the equations for maximum weavability, when compression of the yarns under the float takes place in tightly woven structures, it is possible to get values of K exceeding K_0 . The development of the maximum weavability equations is based on values of K which exceed K_0 . The larger value is designated as K_0 (max). At this stage of our development, however, K_0 can be considered to be the maximum practical cover factor and much valuable design and development work is done utilizing K_0 as a threshold value against which a computed K may be compared.

Yarn diameter (d):

The value of K_0 will vary depending upon the specific volume or density of the yarns for which it is used. Therefore, it is necessary to derive the relationship between diameter (d) and yarn Number (N) as a basis of computing a range of K_0 values. An assumption which has been made in working with this relationship is that cotton yarns have a specific volume of 1.1. If this assumption is accepted, then values of K_0 for a wide variety of fiber types and blends may be computed, if the packing factor or packing coefficient for yarns made from these fibers is considered as identical to that of cotton yarn. More will be said about this later.

. The Chro

The relationship between diameter and yarn number may be deduced as follows:

Consider a textile yarn as an incompressible cylinder of length "L" and diameter "d"

The volume of this cylinder =
$$\frac{d^2 \mathcal{L}}{4}$$
 (9)

The weight of the cylinder =
$$\frac{\pi d^2 De}{l_1}$$
 Where De is density (10) of yarn

In the metric system the weight in grams of the yarn would be

$$W = \frac{1}{4} \frac{2De}{4} \qquad \qquad \int_{De} \frac{\ln cm}{cm/cm^3} \qquad (11)$$

Keeping De in the metric system, which is conventional, but converting W, L, and d to pounds, yards and inches respectively, which are conventional for textile yarns, the following results:

gm =
$$\frac{7 \text{ cm}^2 \text{ cm De}}{4}$$
 lbs x 454.6 = gms
in² x 2.54² = cm²
gm = .785 cm² cm De yds x 36 x 2.54 = cm

11.3 x 454.6 = .785
$$\sin^2 x \ 2.54^2 \ x \ yds \ x \ 36 \ x \ 2.54 De$$
 (12)

$$W = 1.0189 d^2 \cancel{L} De$$
 (14)

$$d^2 = \frac{W}{1.0189 2 \text{ De}}$$
 (15)

$$d = \sqrt{\frac{W}{1.0189 \text{ p be}}}$$
 (16)

Divide top and bottom of fraction by W

$$d = \sqrt{\frac{1}{1.0189 \text{ g/W De}}}$$
 (17)

By definition, in the cotton numbering system where \mathcal{L} is in yds. and W in pounds and N = Yarn Number

$$\mathcal{L}/W = 840 \text{ N}$$
 (18)

$$d = \sqrt{\frac{1}{840 \times 1.0189 \text{ N De}}}$$
 (19)

d
$$=\sqrt{\frac{.001168L}{N De}}$$
 (20)

$$d \sim \sqrt{\frac{.0342}{N \text{ De}}}$$
 (21)

Relationship between K and d/p:

If we find the general relationship between K and d/p, then K_0 can be determined as the value of K when d/p = 1, in other words, when the fractional coverage is unity or the projected area of the yarns equals the total fabric area.

Recall from equation (8) that: $K = \frac{n}{\sqrt{N}}$

and from equation (1) that: $n = \frac{1}{p}$

therefore $K = \frac{1}{p\sqrt{N}}$ (22)

and $p = \frac{1}{K\sqrt{N}}$ (23)

From equation (21)

d • .0342

therefore $\frac{\frac{.0342}{\sqrt{N} \quad De}}{\frac{1}{K \sqrt{N}}}$

thus $\frac{d}{p} = \frac{.0342 \text{ K}}{\sqrt{D_{\bullet}}} \tag{25}$

Calculation of Ko:

By definition when d/p = 1 $K = K_0$ or $\frac{d/p}{1} = \frac{k}{K_0}$ (26)

 $1 = \frac{.03 42 \text{ K}_0}{\sqrt{\text{De}}} \tag{27}$

 $K_0 = \sqrt{\frac{De}{.0342}}$ or $K_0 = 29.2 \sqrt{De}$ (28)

Thus for any yarn, regardless of fiber composition or structure, if we know the yarn density (bulk density) we can compute Ko, i.e., the "maximum" cover factor corresponding to d/p = 1. The problem of determining yarn density is a difficult one and much fabric design as practiced today for cotton fabrics is based upon Peirce's selection of .909 as the bulk density of cotton yarn (.909 is the reciprocal of the specific volume value of 1.1).

For cotton then:
$$K_0 = 29.2 \sqrt{.909} = 27.8$$
 (29)

Some workers round this figure off to 28.0

Packing factor:

It is convenient to relate the density of cotton yarn to the density of cotton fiber. This relationship, expressed as a ratio, is termed the packing coefficient or packing factor.

$$PC = \frac{De (yarn)}{De (fiber)}$$
 (30)

For cotton:
$$PC = \frac{.909}{1.54} = .59$$
 (31)

It has become conventional for designers working with fibers other than cotton to assume that the packing factor of yarns made from these other fibers is constant at .59. With this assumption it becomes simple to compute the densities of yarns, made from a wide variety of fibers, using equation (30).

$$De(yarn) = PC \times De(fiber)$$
 (32)

Substituting this relationship in equation (28), the following is obtained:

$$K_0 = 29.2 \sqrt{\text{De (yarn)}}$$
 (34)

$$K_0 = 29.2 \sqrt{PC \times De \text{ (fiber)}}$$
 (35)

$$K_0 = 29.2 \sqrt{.59De (fiber)}$$
 (36)

$$K_{O} = 22.4 \sqrt{\text{De (fiber)}}$$
 (37)

K values for some typical fiber species are ; iven in the following table:

Fiber	Density of fiber	VDe (fiber)	К _о
Nylon	1.14	1.067	24.0
Wool	1.32	1.149	25.8
Dacron	1.37	1.170	26.3
Cotton	1.5կ	1.241	27.8
Glass	2.54	1.594	35.8

II DERIVATION OF THE HAXIMUM WEAVABILITY EQUATION FOR THE PLAIN WEAVE

In order to reduce the number of variables required in the solution of the geometry of the plain weave, Peirce introduced the parameter "E" which is the sum of the diameters of the warp and filling yerns.

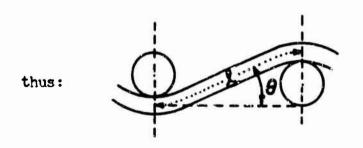
Thus
$$D = d_1 + d_2$$
 where (38)

subscripts 1 and 2 apply to warp and filling respectively. Other symbols used by Peirce are:

h = maximum displacement of yarn axis measured normal to the cloth as follows:



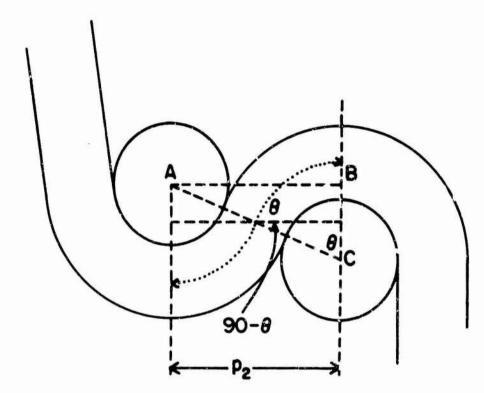
length of yern in a unit cell



θ = angle between yarn axis and plane of clothp, n, and d are as used previously in this report

In tight fabric constructions the yarn systems are considered to be jammed. When the warp yarn is jammed, for example, there is no straight portion in the warp yarn and a line joining the centers of the filling yarns is perpendicular to the warp yarn axis at the point of intersection. When this condition prevails, as shown below, both the filling yarn spacing p₂ and the filling yarn displacement h₂ are functions of the angle (0) between the warp yarn axis and the plane of the cloth.*

^{*} No yarn compression is assumed in these preliminary derivations.



Construction for Filling Yarn Spacing

p₂ is the spacing of the filling yarns and thus is equal to the distance between the vertical lines above: AB

D is the sum of the diameters of the warp and filling yarns which is the length of the diagonal line above: AC

From the geometry of the triangle ABC:

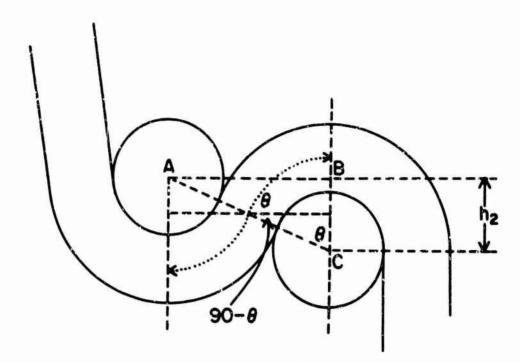
$$\sin \theta = \frac{AB}{AC} = \frac{p_2}{D} \tag{39}$$

and
$$p_2 = L \sin\theta$$
 (40)

For filling yarn displacement:

 h_2 is the displacement of the filling yarns, which is the distance BC below.

D is the sum of the diameters: AC below.



Construction for Filling Yarn Displacement

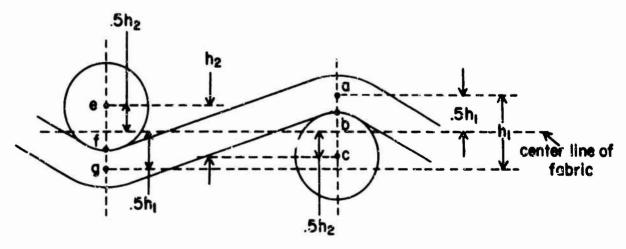
From the geometry of the triangle ABC:

$$\cos \theta = \frac{BC}{AC} = \frac{h2}{D} \tag{41}$$

and
$$h_2 = D \cos \theta$$
 (42)

It can also be shown that for any yarn configuration

$$h_1 + h_2 = D \tag{43}$$



$$.5h_1 + .5h_2 = ef + fg$$
 $.5h_1 + .5h_2 = ab + bc$

$$h_1 + h_2 = ab + bc + ef + fg$$

ab = r₁ (radius of warp yarn)

bc = r2 (radius of filling yarn)

ef r₂

 $fg = r_1$

$$h_1 + h_2 = r_1 + r_2 + r_1 + r_2$$

 $h_1 + h_2 = 2(r_1 + r_2) = d_1 + d_2 = D$

therefore $h_1 + h_2 = D$

Summarizing: When the warp is jammed, then from equation (42)

h₂ = D cos 3₁

When the filling yarn is jammed it can be shown in an analogous fashion that:

$$h_1 = D \cos \theta_2$$
 (44)

Since
$$h_1 + h_2 = D$$
 (45)

then D cos
$$\theta_1$$
 + D cos θ_2 = D (46)

and
$$\cos \theta_1 + \cos \theta_2 = 1$$
 (L7)

Since
$$\cos^2\theta + \sin^2\theta = 1$$
 (48)

$$\cos \theta_1 = \sqrt{1 - \sin^2 \theta_1} \tag{49}$$

and
$$\cos \theta_2 = \sqrt{1 - \sin^2 \theta_2}$$
 (50)

Therefore
$$\sqrt{1 - \sin^2\theta_1} + \sqrt{1 - \sin^2\theta_2} = 1$$
 (51)

Recall from equation (40) that
$$p_2 = D \sin \theta_1$$
 (52)
then $\sin \theta_1 = \frac{p_2}{D}$

analogously
$$p_1 = D \sin \theta_2$$
 and $\sin \theta_2 = \frac{p_1}{D}$ (53)

Therefore
$$\sqrt{1-\left(\frac{p_2}{\overline{D}}\right)^2}+\sqrt{1-\left(\frac{p_1}{\overline{D}}\right)^2}=1$$
 (54)

Equation (54) is the basis of the widely used equations for maximum weavable fabrics. To make it more generally applicable to the design problems of the textile engineer, it has been customary to introduce the cover factor (K) into the relationship and also to use the Peta (B) factor instead of D.

Beta (B) is defined as the ratio of the filling yarm diameter to the warp yarm diameter. It is also numerically equal to the ratio of the square root of the warp yarm number to the square root of the filling yarm number, for the indirect yarm numbering system.

Thus

$$B = \frac{d_2}{d_1}$$
 and $d_2 = Bd_1$ (55)

or
$$B = \sqrt{\frac{N_1}{N_2}} \tag{56}$$

Since D =
$$d_1 + d_2$$
 it follows from (55) that

D = $d_1 + B d_1$ and D = $d_1 (1 + B)$ (57)

also
$$D = \frac{d_2}{B} + d_2$$
 $D = \frac{d_2(1 + B)}{B}$ (58)

Therefore
$$\frac{p_1}{\overline{D}} = \frac{p_1}{d_1 (1 + B)}$$
 (59)

$$\frac{p_2}{D} = \frac{p_2 - B}{d_2 - (1 + B)} \tag{60}$$

Recall from (26) that
$$\frac{d}{p} = \frac{K}{K_0}$$
 (61)

Also from (29) for yarns numbered in the cotton system and having a bulk density of .909 (the value selected by Peirce):

$$K_0 = 27.8$$
 (62)

Then
$$\frac{d}{p} = \frac{K}{27.8}$$
 or $\frac{p}{d} = \frac{27.8}{K}$ (63)

Thus from (57)
$$\frac{p_1}{D} = \frac{27.8}{K_1(1 + B)}$$
 (614)

and from (58)
$$\frac{p_2}{D} = \frac{27.8B}{K_2 (1 + B)}$$
 (65)

Therefore:
$$\sqrt{1-\left(\frac{27.8}{K_1} \frac{2}{(1+B)}\right)} + \sqrt{1-\left(\frac{27.8B}{K_2} \frac{2}{(1+B)}\right)} = 1$$
 (66)

This is the equation for the plain weave, from which the supplementary equations for the twill and sateen weaves have been derived. Before going into the derivation of these other equations it might be well to briefly review the manner in which the above equation is used. Observe that there are variables K_1 , K_2 , and B. These three are not completely independent. The warp yarn number N₁ is a component of K₁, the filling yarn number N₂ is a component of K_2 and the ratio of these two yarn numbers determines E. For a given B and K₁ however, it is possible to obtain the corresponding K₂ required to make the fabric a maximum weavable construction and conversely for a given B and K2 it is possible to obtain the corresponding K1 required to make a maximum weavable construction. In Textile Series Report No. 1284 this equation was solved for a wide range of cover factors (K) and Beta factors (B). For example, on page 149 of report No. 128 it may be observed that for a fabric having a warp cover factor (K1) of 20 and a Beta factor (B) of 1.4, the maximum possible filling cover factor (K2) is 16.6.

From the practical point of view, the textile designer would tentatively select a warp texture (n) and a warp yarn number (N) to obtain the warp cover factor. Then for a given filling yarn number, which would provide the Beta (B), he would obtain the maximum possible filling cover factor and finally for the given filling yarn number he would find in the tables in Report No. 1284 the maximum number of filling yarns (n) which could be woven into the given structure. Depending upon which constructional factors are known, a spectrum of the unknowns in the design of the plain weave fabric can thus be obtained.

III DERIVATION OF THE EQUATIONS FOR LOCAL SPACING IN TWILLS AND SATEENS

Peirce did not extend his geometry of jammed plain weave fabrics to other weave types. This was done by Love in 1955. Two additional assumptions must be made regarding the geometry of the yarns in long float weaves, such as the twills and the sateens, before a model can be formulated for analysis. The first assumption is that the yarns under a long float move toward each other under the stress of weaving until they touch. The second assumption goes beyond the touch stage and postulates that complete flattening takes place in that half of the yarn which contacts a neighboring yarn under the float, i.e., that the original simicircle of the yarn half section becomes a rectangle after compression; and that this compression does not alter the fiber packing density (packing factor). Actual observation of yarns in many tight constructions confirms the fact that these assumptions have a valid basis.



In this section of the report two equations are derived which provide solutions for local spacing (p) in terms of weave factor (M), average spacing (p_R) and either original average yearn diameter (d_{OR}) which pertains to the situation where the yearns move toward and touch each other but are not compressed (designated as Aspect I) or (M), (p_R) , (d_{OR}) and compressed average yearn diameter (d_{CR}) which pertains to the situation where compression of the yearns takes place in that half of the yearn which contacts a neighboring yearn under the float (designated as Aspect II).

The following terms are defined:

- M = weave factor = Number of yarns per repeat of weave
 Number of interlacings per repeat of weave
- p = local spacing = distance between yarn centers of warp or filling at interlacings.
- pa = average spacing = numerical average of "local spacings" and spacing at points of no interlacing,
- doa = original average lateral diameter = the numerical
 average of the yarn diameters assuming no compression
 has taken place (Aspect (I)).
- d_o = original lateral diameter = same value as d_{oa} for an individual yarn.
- d_{C2} = compressed average lateral diameter = the numerical
 average of the compressed and uncompressed lateral
 diameters of the yarns (Aspect (II)).
- d_o = compressed lateral diameter = lateral diameter of compressed yarn only.
 - 1 = subscript l as in pl, pal, doal, etc. --- indicates
 warp yarn.

Aspect I

First examine the situation of Aspect I where the yarns under the floats are assumed to be in contact but not compressed. This can be illustrated diagramatically for a 3, 4, and 5-harness weave as follows:

3 Harmess
$$M = 1.5$$

$$P_{i} \rightarrow d\sigma_{i} \qquad k-P_{i} \rightarrow d\sigma_$$

5 Harness M = 2.5

Warp Yarn Arrangement in Twill Weaves (No Compression)

As shown above, p_1 is the local spacing, which is defined as the distance between centers of the warp yarns (for this case) at the interlacing. And d_{01} is the uncompressed diameter of the warp yarn. In these illustrations d_{01} also represents the spacing at points of <u>no</u> interlacing under the floats.

Now the average warp spacing (pa1) for each of the three weaves is:

3-harness -
$$p_{a1} = \frac{2p_1 + d_{o1}}{3}$$

4-harness -
$$p_{a1} = \frac{2p_1 + 2d_{o1}}{4}$$

5-harness -
$$p_{a1} = \frac{2p_1 + 3d_{o1}}{5}$$

Solving each of the above for p1 we obtain:

3-harness:
$$3p_{a1} = 2p_1 + d_{o1}$$
 $p_1 = 3/2 p_{a1} - 1/2 d_{o1}$

4-harness:
$$4p_{a1} = 2p_1 + 2d_{o1}$$
 $p_1 = 4/2 p_{a1} - 2/2 d_{o1}$

5-harness:
$$5p_{a1} = 2p_1 + 3d_{o1}$$
 $p_1 = 5/2 p_{a1} - 3/2 d_{o1}$

Note that for all of these simple weaves the number of interlacings is two and the number of yarns per repeat is equal to the number of harnesses of the weave. Thus, the weave factor is numerically equal to half the number of harnesses. In the above equations the coefficient of $p_{8.1}$ is always equal to the number of harresses divided by the number of interlacings—which is the weave factor "H". Likewise, the coefficient of $d_{0.1}$ is equal to the weave factor less one or "M-1".

Thus for uncompressed yarrs:

$$p_1 = Mp_{a1} - (M_{-1}) d_{o1}$$

Since for uncompressed yarns doi = doa1

then

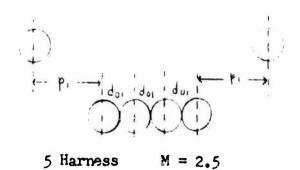
$$p_1 = Mp_{a1} - (M-1) d_{oa1}$$
 Aspect (I) (67)

Aspect II

Now examine Aspect (II) in which compression takes place in the warp

Aspect I

First examine the situation of Aspect I where the yarns under the fleats are assumed to be in contact but not compressed. This can be illustrated diagramatically for a 3, 4, and 5-harness weave as follows:



Warp Yarn Arrangement in Twill Weaves (No Compression)

As shown above, p_1 is the local spacing, which is defined as the distance between centers of the warp yarns (for this case) at the interlacing. And d_{01} is the uncompressed diameter of the warp yarn. In these illustrations d_{01} also represents the spacing at points of $\underline{n}\underline{c}$ interlacing under the floats.

Now the average warp spacing (pa1) for each of the three weaves is:

3-harness -
$$p_{a1} = \frac{2p_1 + d_{o1}}{3}$$

4-harness -
$$p_{a1} = \frac{2p_1 + 2d_{o1}}{4}$$

5-harness -
$$p_{a1} = \frac{2p_1 + 3d_{o1}}{5}$$

Solving each of the above for p1 we obtain:

3-harness:
$$3p_{a1} = 2p_1 + d_{o1}$$
 $p_1 = 3/2 p_{a1} - 1/2 d_{o1}$

4-harness:
$$4p_{a1} = 2p_1 + 2d_{o1}$$
 $p_1 = 4/2 p_{a1} - 2/2 d_{o1}$

5-harness:
$$5p_{a1} = 2p_1 + 3d_{o1}$$
 $p_1 = 5/2 p_{a1} - 3/2 d_{o1}$

Note that for all of these simple weaves the number of interlacings is two and the number of yarns per repeat is equal to the number of harnesses of the weave. Thus, the weave factor is numerically equal to half the number of harnesses. In the above equations the coefficient of p_{a1} is always equal to the number of harnesses divided by the number of interlacings——which is the weave factor "M". Likewise, the coefficient of d_{o1} is equal to the weave factor less one or "M-1".

Thus for uncompressed yarns:

$$p_1 = Mp_{a1} - (M-1) d_{o1}$$

Since for uncompressed yarns $d_{01} = d_{001}$

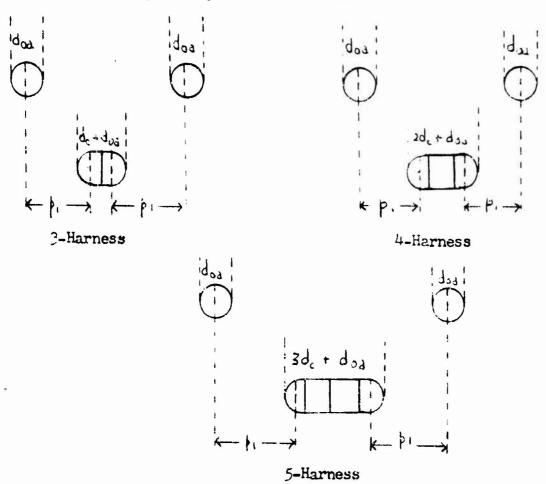
then

$$p_1 = Mp_{a1} - (M-1) d_{oa1}$$
 Aspect (I) (67)

Aspect II

Now examine Aspect (II) in which compression takes place in the warp

yarns under the float. Recall that compression occurs in that half of the yarn which contacts a neighboring yarn under the float. For the three weaves this may be represented as follows:



Warp Yarn Arrangement in Twill wgaves (Compressed Situation)

The average compressed and average yarn diameter (dcal) and the compressed yarn diameter (dcl) for the three weaves is then:

The average spacing (pal) for each of the three weaves is:

3-harness:
$$p_{al} = \frac{2p_1 + d_{cl}}{3} = \frac{2p_1 + 3d_{cal} - 2d_{oal}}{3}$$

4-harness:
$$p_{al} = \frac{2p_1 + 2d_{cl}}{4} = \frac{2p_1 + 2\left(\frac{4d_{cal}}{4} - \frac{2d_{cal}}{4}\right)}{4}$$

5-harmess:
$$p_{al} = \frac{2p_1 + 3d_{cl}}{5} = \frac{2p_1 + 3\left(\frac{5d_{cal} - 2d_{oal}}{3}\right)}{5}$$

Solving each of the above for pl we obtain:

3-harness:
$$3p_{al} = 2p_l + 3d_{cal} - 2d_{oal}$$
 $p_l = 3/2 p_{al} - 3/2 d_{cal} + d_{oal}$ $= 3/2 (p_{al} - d_{cal}) + d_{oal}$

4-harness:
$$4p_{al} = 2p_l + 4d_{cal} - 2d_{cal}$$
 $p_l = 4/2 p_{al} - 4/2 d_{cal} + d_{cal}$ $= 4/2 (p_{al} - d_{cal}) + d_{cal}$

5-harness:
$$5p_{al} = 2p_l + 5d_{cal} - 2d_{oal}$$
 $p_l = 5/2 p_{al} - 5/2 d_{cal} + d_{oal}$ $= 5/2 (p_{al} - d_{cal}) + d_{cal}$

Here, the coefficient of $(p_{al} - d_{cal}) = M$ for each of the weaves. Thus for compressed yarns:

$$\frac{p_1 = M(p_{al} - d_{cal}) + d_{oal}}{Aspect (II)}$$
 (68)

IV DERIVATION OF Ka (max) AND MAXIMUM WEAVABILITY EQUATIONS FOR OTHER WEAVE TYPES

Equation (68) provides a means of determining the local spacing (n) in the warp and filling directions for twill and sateen fabrics in which the assumed movement and compression of the yarns under the float takes place. This provides the numerator of the ratio p/D which is the essential expression in the formulation of the equation for maximum weavability. Now we must find the appropriate value of D (sum of diameters of warp and filling yarms) which will take into consideration the assumed yarn movement and compression. It is understood that compression takes place only in the plane of the fabric and that accordingly the vertical dimension of the yarn (that direction perpendicular to the plane of the fabric) does not change during compression. In addition, fiber packing density does not change.

We can now visualize the dimensional arrangement of the yarns in situations where there are 2, 3, and 4 yarns under the float, representing 3, 4, and 5-harness weaves and can compute the average compressed diameter (d_{Ca}) of the yarns.

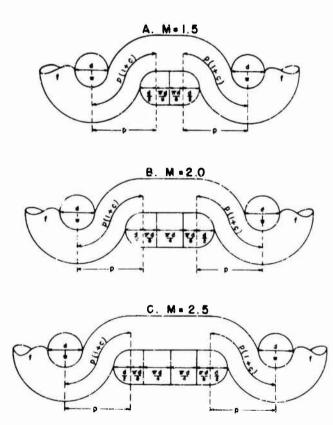


DIAGRAM: YARN COMPRESSION BETWEEN THE FLOAT

We assumed that complete flattening takes place in the half of the yarn which contacts a neighboring yarn under the float and that the original semicircle of the yarn half section became a rectangle after compression. Since the vertical dimension of this compressed half section does not change from the original uncompressed yarn, all of the compression must take place in the horizontal direction. But since the fiber packing density remains constant, the area of the compressed half section must equal that of the uncompressed half section. This means that the product of the compressed horizontal dimension (width) multiplied by the uncompressed vertical dimension (height) must equal the area of the uncompressed semi-circular yarn section. In other words,

$$\frac{\pi d^2}{8} = d \times (Compressed width)$$
 (69)

Compressed width
$$=\frac{\pi d}{8}$$
 (70)

In the situation shown in the diagram "Yarn Compression Between the Float," for M = 1.5 (where three yarns constitute a repeat of weave), the original (before compression) lateral diameter of the three yarns in the repeat is:

$$d \times 3 = 3d \tag{73}$$

After compression has taken place the lateral diameters of the three yarns in the repeat is:

$$d + d + .79 d = 2.79 d$$
 (74)

The compressed average lateral diameter is then

$$d_{ca} = \frac{2.79 \text{ d}}{3} \tag{75}$$

Or putting this in terms of the standard symbols:

$$d_{ca} = .93 d_{oa}$$
 (for M = 1.5) (76)

By following the same reasoning we find that the relationships between d_{ca} and d_{oa} for the weaves with M = 2 and M = 2.5 are:

$$d_{ca} = .89d_{oa}$$
 (For M = 2.0)

$$d_{ca} = .87d_{oa}$$
 (For M = 2.5)

Computation of Ka (max):

Since the average compressed lateral diameters of the yerns are less than the average original lateral diameters of the yerns, it is obvious that more compressed yerns can be squeezed into the same space than would be predicted from the value of K_0 which was previously computed, since K_0 represents the maximum cover factor for yerns assumed to be completely cylindrical. Therefore, in dealing with the 3-, 4-, and 5-harness weaves where migration and compression of the yerns under the float take place, it is necessary to develop a new K_0 to take into consideration the additional number of yerns it is possible to squeeze into the structure. This new K_0 is designated as K_a (max.)

Recall from equation (25) that:

$$\frac{d}{p} = \sqrt{\frac{0.342K}{De}}$$
 (77)

Since for cotton De = .909

then
$$\frac{d}{p} = .0359K$$
 (78)

and
$$K = \frac{27.8d}{p}$$
 (80)

The maximum cover factor or K_a (max) will occur when adjacent yarns are in contact. When this situation prevails the average spacing equals the average compressed diameters or



$$p_{\mathbf{a}} = d_{\mathbf{c}\mathbf{a}} \tag{21}$$

therefore
$$K_a (max) = \frac{27.8 d_{0a}}{d_{ca}}$$
 (82)

And since from (76) for M = 1.5

$$d_{ca} = .93 d_{oa}$$
 (83)

We have
$$K_a$$
 (max) = $\frac{27.8 \text{ dos}}{.93 \text{ dos}}$ = 29.9 (84)

The factor 28.0 has been used in the past in lieu of 27.8. In this case for 28.0 we have:

$$K_a \text{ (max)} = \frac{28.0 \text{ dos}}{.93 \text{ dos}} = 30.2$$
 (85)

Now express d_{oa} in terms of D using equations (55) to (58).

$$B = \frac{d_{oa2}}{d_{oa1}} \qquad D = d_{oa1} + d_{oa1}B$$

..
$$p = d_{oal} (1 + B)$$
 (87)

Since from (76)
$$d_{cal} = .93 d_{cal}$$
 (88)

$$d_{oal} = 1.08 d_{cal}$$
 (89)

therefore:
$$D = 1.08 d_{cal} (1 + B)$$
 (90)

and using equation (68) for local spacing

$$p_1 = M(p_{al} - d_{cal}) + d_{oal}$$
 (91)

Subscripts 1 and 2 refer to warp and filling respectively.

We obtain
$$\frac{p_1}{D} = \frac{M(p_{al} - d_{cal}) + d_{cal}}{1.08 d_{cal} (1 + B)}$$
 (92)

From equation (80) using the value 28.0, we get:

$$K_{al} = \frac{28 \text{ d}_{cal}}{P_{al}} = \frac{30.2 \text{ d}_{cal}}{P_{al}}$$
 (93)

and
$$p_{al} = 30.2 d_{cal}$$
 (94)

therefore
$$\frac{p_{1}}{\overline{D}} = \frac{1.5 \left(\frac{30.2 \, d_{cal}}{K_{al}} - d_{cal}\right) + d_{cal}}{1.08 \, d_{cal} \, (1 + B)} \tag{95}$$

$$\frac{p_1}{D} = \frac{1.5 d_{cal} \left(\frac{30.2}{K_{al}} - 1\right) + d_{oal}}{1.08 d_{cal} (1 + B)}$$
(96)

$$\frac{p_1}{\mathbf{D}} = \frac{1.5 \, d_{cal} \left(\frac{30.2}{K_{al}} - 1\right) + 1.08 \, d_{cal}}{1.08 \, d_{cal} \, (1 + B)}$$
 (97)

$$\frac{P_1}{D} = \frac{1.5 \left(\frac{30.2}{K_{a1}} - 1\right) + 1.08}{1.08 (1 + B)}$$
 (98)

Recall from (55) that
$$B = \frac{doa2}{doal}$$
 doal $\frac{doa2}{B}$ (79)

And
$$D = d_{oal} + d_{oa2}$$
 (100)

therefore
$$D = \frac{d_{Oa2}}{B} + d_{Oa2}$$
 (101)

$$D = \frac{d_{0a2} + d_{0a2} B}{B}$$
 (102)

$$D = \frac{d_{0a2} (1 + B)}{B}$$
 (103)

And from (89)
$$d_{0a2} = 1.08 d_{ca2}$$
 (104)

therefore
$$D = \frac{1.08 \text{ d}_{ca2} (1 + B)}{B} \text{ (for M = 1.5)}$$
 (105)

And from (68) for local spacing

$$p_2 = M (p_{a2} - d_{ca2}) + d_{oa2}$$
 (106)

therefore
$$\frac{p_2}{D} = \frac{M(p_{a2} - d_{ca2}) + d_{oa2}}{\frac{1.08 d_{ca2} (1 + B)}{B}}$$
 (107)*

And
$$\frac{p_2}{D} = \frac{\left[M \left(p_{a2} - d_{ca2}\right) + d_{oa2}\right] B}{1.08 i_{ca2} (1 + B)}$$
 (108)

And from (94)
$$p_{a2} = \frac{30.2 \text{ d}_{ca2}}{K_{a2}}$$
 (109)

^{*} M = 1.5 for equations 107 to 115 inclusive

therefore

$$\frac{P_2}{D} = \frac{\left[M\left(\frac{30.2 \text{ d}_{ca2}}{K_{a2}} - \text{ d}_{ca2}\right) + \text{ d}_{oa2}\right]_B}{1.08 \text{ d}_{ca2} (1 + B)}$$
(110)

$$\frac{P_2}{D} = \frac{\left[\frac{M_{dca2}\left(\frac{30.2}{K_{a2}} - 1\right) + d_{oa2}}{1.08 d_{ca2} (1 + B)}\right]}{1.08 d_{ca2} (1 + B)}$$
(111)

$$\frac{p_2}{D} = \frac{\left[\frac{M_{dea2}}{K_{a2}} - 1\right] + 1.08 d_{ea2}}{1.08 d_{ea2} (1 + B)}$$
(112)

$$\frac{P_2}{D} = \frac{\left[\frac{M}{K_{a2}} - 1\right] + 1.08 B}{1.08 (1 + B)}$$
(113)

And since from (54)

$$\sqrt{1 - \left(\frac{p_1}{D}\right)^2} + \sqrt{1 - \left(\frac{p_2}{D}\right)^2} = 1$$
 (114)

We have
$$\sqrt{1 - \left[\frac{M \left(\frac{30.2}{K_{al}} - 1 \right) + 1.08}{1.08 (1 + B)} \right]^{2}} + \sqrt{1 - \left[\frac{M \left(\frac{30.2}{k_{a2}} - 1 \right) + 1.08}{1.08 (1 + B)} \right]^{2}} = 1$$
(115)

This is the specific maximum weavability equation of a three harness weave for cotton fabrics numbered in the cotton system and using a $K_{\rm O}$ of 28.0.

V. DERIVATION OF THE GENERALIZED MAXIMUM WEAVABILITY EQUATIONS FOR ALL FIBER SPECIES AND BLENDS

We shall now derive the general equation for a 3-harness weave made from any type of fiber but also numbered in the cotton system.

Recall from (77) that
$$\frac{d}{p} = \frac{.0342 \text{ K}}{\sqrt{\text{De}}}$$
 (116)

Where De is the bulk density of the yarn

and
$$\frac{d}{p} = \frac{K}{29 \cdot 2 \sqrt{De}}$$
 (117)

Thus, recalling equation (79), whenever we use the factors 27.8 or 28.0 in the derivation of Equation (115) above, we may now substitute 29.2 / De

For example, for the three harness weave, Equation (85)

$$K_a \text{ (max)} = \frac{29.2 \text{ VDe}}{.93 \text{ d}_{oa}} = 31.4 \text{ VDe}$$
 (118)

Thus the general equation for the 3-Harness Weave is: (119)
$$1.5 \left(\frac{31.4 \sqrt{\text{De}}}{\text{K}_{81}} - 1\right) + 1.08\right)^{2} + \sqrt{1 - \left[\frac{1.5 \left(\frac{31.4 \sqrt{\text{De}}}{\text{K}_{82}} - 1\right) + 1.08}{1.08 (1 + B)}\right]^{2}} + \sqrt{1 - \left[\frac{1.5 \left(\frac{31.4 \sqrt{\text{De}}}{\text{K}_{82}} - 1\right) + 1.08}{1.08 (1 + B)}\right]^{2}} + 1$$

For the four harness weave (M = 2) d_{cal} = 357 $d_{oal}/4$ = .89 d_{oal}

And
$$d_{cal} = 1.12 d_{cal}$$
 (121)

$$K_{al} = \frac{28 \text{ doal}}{p_{al}} = \frac{28 \times 1.12 \text{ doal}}{p_{al}} = \frac{31.4 \text{ doal}}{p_{al}}$$
 (122)

For the general case of the 4-Harness Weave, we use

$$K_{al} = \frac{29.2\sqrt{De} \times 1.12 d_{cal}}{P_{al}} = \frac{32.7\sqrt{De} d_{cal}}{P_{al}}$$
 (123)

And the general equation for the 4-Harness Weave is: (124)
$$\sqrt{1 - \left[2 \frac{32.7 \text{ VDe}}{K_{al}} - 2\right] + 1.12} + 1.12 + 1.12 \frac{2}{K_{a2}} + 1.12 \frac{2}{K_{a2}} - 1 + 1.12 \frac{2}{K_{a2}} + 1.1$$

For the Five Harness Weave (M = 2.5)

1

$$d_{cal} = .87 d_{cal}$$
 (125)

$$d_{oel} = 1.15 d_{cel}$$
 (126)

For the general case of the 5-Harness Weave we use

$$K_{al} = \frac{29.2 \sqrt{De} (1.15) d_{cal}}{p_{al}} = 33.6$$
 (127)

And thus the general equation for the 5-Harness Weave is:

$$\sqrt{1 - \left[\frac{2.5 \left(33.6 \sqrt{De} - 1\right) + 1.15}{1.15 (1 + B)}\right]^2 + \sqrt{1 - \left[\frac{2.5 \left(33.6 \sqrt{De} - 1\right) + 1.15}{1.15 (1 + B)}\right]^2} = 1$$
(128)

For the Oxford Weave the warp portion of the equation is identical to that for the 4-Harness Weave (M = 2.0) and the filling portion of the equation is identical to that for the Plain (2-Harness Weave).

The general equation for the Oxford is therefore:

$$\sqrt{1 - \left[\frac{2.0 \left(\frac{32.7 \sqrt{De}}{K_{al}} - 1\right) + 1.12}{1.12 (1 + B)}\right]^{2}} + \sqrt{1 - \left[\frac{29.2 \sqrt{De}}{(1 + B) K_{a2}}\right]^{2}} = 1$$
(129)

These general equations are now in practically the same form as the original equations for cotton which were derived in Textile Series Report No. 90°, and solved and tabled in Textile Series Report No. 128°. One new variable appears, namely, De, the bulk density of the yarn. In the tabulations which appear in TSR 128°, one table is required to encompass the solutions of the maximum weavability equation for each weave type, or a total of five tables are necessary for the five basic weave types: the plain, 3-harness, 4-harness, 5-harness, and oxford. To establish a series of tables of solutions for the new general equations it will be necessary to have a group of five tables (representing the five weaves) for each of the yarn bulk densities which are selected.

REFERENCES

- 1. Ball, H.J., "Engineering Design of Textile Structures," Lowell Tech. Inst., Lowell, Mass. (1961).
- 2. Peirce, F.T., "The Geometry of Cloth Structure," Textile Inst. 2. T 45 (1937).
- 3. Love, L., "Graphical Relationships in Cloth Geometry for Flain, Twill and Sateen Weaves," Textile Series Report No. 90, US Army Natick Laboratories, Natick, Mass., (Sept. 1955)
- Weiner, L.I. and Johnston, J.E., "Design Tables for Cotton Fabrics," Textile Series Report No. 128, U.S. Army Natick Laboratories, Natick, Mass. (August 1964).

TABLE I

BULK DENSITIES OF YARNS, COMPUTED FROM FIBER DENSITIES

This table lists the fiber densities of the natural and man-made fibers in use today. Corresponding to each fiber density, the yarn bulk density of a theoretical yarn spun from this fiber is given, assuming that the packing coefficient of the yarn is 0.59. The range of densities includes fibers as light as polypropylene and as heavy as stainless steel. The additional fiber densities provide for the development of fibers which differ in density from existing fiber species.

TABLE I

BULK DENSITIES OF YARNS, COMPUTED FROM FIBER DENSITIES*

(Listed in order of fiber density)

Fiber Designation	Fiber Density	Yarn Bulk Density gm/cm3
Folypropylene	•91	•54
Folyethylene (Low Density)	•92	•54
Polyethylene (High Density)	•95	•56
	•98	•58
	1.10	.65
	1.12	•66
Mylon	1.14	.67
Orlon	1.14	.67
	1.15	•68
Acrilan	1.17	.69
Creslan	1.18	.70
Nytril	1.18	.70
Zefrag	1.19	.70
	1.20	•71
Kodel	1.22	.72
	1.24	•73
Silk (Boiled-off)	1.25	•74
Az? on	1.25	.74
Vinal	1.26	•74

^{*}Yarn bulk density = fiber density x 0.59 (standardized "packing confficient"); see Equation (1)

TABLE I (Cont'd)

Fiber Designation	Fiber Density	Yarn Bulk Density gm/cm3
	1.27	•75
	1.29	.76
Dynel	1.30	•77
Arnel	1.30	•77
Ardil	1.30	•77
wool	1.32	•78
Lohair	1.32	. 78
Acetate	1.32	.7 8
	1.34	•79
Vinyon	1.35	.80
Vyeron	1.36	.80
Verel	1.37	.81
Dacron	3 8	.81
Fortrel	1.38	.81
	1.39	.82
	1.41	.83
	1,42	.84
	1.44	. 85
	1.46	.86

TABLE I (Cont'd)

Fiber Designation	Fiber Density	Yarn Bulk Density
Hemp	1.48	.87
Jute	1.48	.87
	1.49	.88
avril	1.50	.89
Flax (Linen)	1.50	.89
Ramie	1.51	.89
Zantrel	1.51	.89
Viscose Rayon	1.52	•90
Cuprammonium	1.52	•90
Fortisan	1,52	•90
Cotton	1.54	.91
	1.56	•92
	1.58	•93
	1.59	•94
Saran	1.70	1.00
Alginate	1.70	1.00
Teflon	2.30	1.36
Asbestos	2.50	1.48
Fiberglas	2.54	1.50

TABLE I (Cont'd)

Fiber Designation	Fiber Density	Yarn Bulk Density
	3.00	1.7?
	4.00	2.36
	5.00	2.95
	6.00	3.54
	7.00	4.13
Stainless Steel	7.80	4.60

TABLE II

YARN BULK DENSITIES OF BLENDS OF THE IMPORTANT COMMERCIAL FIBERS

Fiber Density	Fiber Designation
1.14	Nylon, Orlon
1.17	Acrilan
1.22	Kodel
1.30	Dynel, Arnel
1.32	Wool, mohair, acetate
1.38	Dacron, Fortrell
1.52	Viscose rayon, cuprammonium, Fortisan
1.54	Cotton

The fiber density of one of the component fibers is given at the top of the first column, with the percentage of that fiber (from 5% to 95%) given below it.

The <u>headings</u> of the following seven columns give the fiber densities of the <u>other</u> component fibers, and the values in the body of the table are yarn bulk densities.

For example: Given a blend of 25% nylon, 75% cotton. Turn to page of table with "Fib. den = 1.14" above first column (fiber density of nylon is 1.14). Drop down to 25 in this column (the percentage of nylon in the blend). Go across this row (25) to the column headed 1.54 (this is the fiber density of cotton). This will give the bulk density of a blend of 25% nylon and 75% cotton as .84.

TABLE II

YARN BULK DENSITIES OF BLENDS OF THE IMPORTANT COMMERCIAL FIBERS

(FIR. DEN. = 1.14)	1.17	1.22	1.30	1.32	1.38	1,52	1.54
(%)	0.69	0.72	n.76	0.77	0.81	0.83	0.89
1 0	0.69	0.71	0,76	0.77	0.80	1.87	0.88
15	0.69	0.71	0.75	0.76	0.79	0.85	0.86
5 u	0.69	0.71	0.75	0.75	r./8	H . H 4).HD
25	0-69	0.71	0.74	0.75	0.77	0.83	0.84
30	0.68	0.70	0.74	0.74	0.77	0.82	0.82
35	0.68	0.70	0.73	0.74	0.76	0.80	18.0
4 0	0.68	0.70	0.73	0.73	٥.75	1,19	J.40
4 h	0.68	0.76	0.72	0.73	Λ.74	0.78	0.73
5 n	0.68	0.70	0.72	0.72	0.74	0.77	0.77
55	0.68	n.69	0.71	0.72	0.73	0.76	0.76
60	0.68	0.69	0.71	0.71	0.72	0.75	0.75
65	0.68	0.69	0,70	0.71	0.72	0.74	0.74
70	0.68	0.69	0.70	0.70	0.71	0,73	0.73
75	0.68	0.68	0,69	0.70	0.70	0.72	0.72
90	0.68	0.68	0.69	0.69	0.70	0.71	0.71
85	0.68	0.68	0.69	0.69	0.69	0,70	0.70
90	0.67	0.68	0.68	0.68	1.68	0.69	0.69
95	n.67	0.67	0.68	0.68	0,48	0.68	0.68
	•						

TABLE II

YARN BULK DENSITIES OF BLENDS OF THE IMPORTANT COMMERCIAL FIBERS

[FIB. DEN. = 1.17]	1.14	1.22	1.30	1.32	1.38	1,52	1.54
(%)							
5	0.67	0.72	0.76	0.77	0.81	0.88	0.89
10	0.67	0.72	0.76	0.77	0.80	0.87	0.88
15	0.68	0.72	0.75	0.76	0.79	0.86	0.87
50	0.68	0.71	0.75	0.76	0.79	0.85	0.85
25	0.68	0.71	0.75	0.75	0.78	0.83	0.84
30	0.68	0.71	0.74	0.75	0.77	0.82	0.83
35	0.68	0.71	0.74	0.75	0.77	0.81	0.82
40	0.68	0.71	0,73	0.74	0.76	0.80	0.81
45	0.68	0.71	0.73	0.74	0.75	0,79	0.80
50	0.68	0.70	0,73	0.73	0.75	0.78	0.78
55	0.68	0.70	0.72	0.73	0.74	0.77	0.77
60	0.68	0.70	0.72	0.72	0.74	0.76	0.75
65	0.68	0.70	0.72	0.72	0.73	0.75	0.75
70	0.68	0.70	0.71	G.71	0.72	0.74	0.74
75	0.69	0.70	0.71	0.71	0.72	0.73	0.73
80	0.65	0.70	0.70	0.71	0.71	0.72	6.73
85	0.69	0.69	0.70	0.70	0.71	0.71	0.72
90	0.69	0.69	0.70	0.70	0.70	0.71	0.71
95	0.69	0.69	0.69	0.69	0.70	0.70	0.70

TABLE II

YARN BULK DENSITIES OF BLENDS OF THE IMPORTANT COMMERCIAL FIBERS

(FIR. DEN. = 1.22)	1.14	1.17	1.30	1.32	1.38	1,52	1.54
5	0.67	0.69	0.76	0.78	0.81	0.89	0.90
10	0.68	0.69	0.76	0.77	0.80	0.88	0.89
15	0.68	0.69	0.76	0.77	0.80	0,86	0.87
20	0.68	0.70	0.76	0.77	0.79	0.85	0.86
25	0.06	0.70	0.75	0.76	0.79	0.54	0.85
30	0.69	0.70	0.75	0.76	n.78	0.84	0.84
35	0.69	0.70	0.75	0.76	0.78	9.83	0.83
4 0	0.69	0.70	0.75	0.75	0.77	0.82	0.82
45	0.69	0.70	0.75	0.75	0.77	0.81	0.81
50	0.70	0.70	0.74	0.75	0.76	0.80	0.80
55	0.70	0.71	0.74	0.75	n.76	0.79	0.79
60	0.70	0.71	0.74	0.74	0.75	0.78	0.79
65	0.70	0.71	0.74	0.74	0.75	0.77	0.78
70	0.70	0.71	0,73	0.74	0.75	0.77	0.77
75	0.71	0.71	0.73	0.73	0.74	0.76	0.76
A 0	0.71	0.71	0.73	0.73	0.74	C.75	0.75
85	0.71	0.72	0.73	0.73	0.73	0.74	0.74
\$ n	0.71	0.72	C,72	0.73	0.73	0.73	0.74
95	0.72	0.72	U.72	0.72	0.72	0.73	0.73

TABLE II
YARN BULK DENSITIES OF BLENDS OF THE IMPORTANT COMMERCIAL FIBERS

(FIB. DEN. = 1.30)	1.14	1.17	1.22	1.32	1.38	1.52	1.54
5	0.68	0.69	0.72	0.78	0.81	0.89	0.96
10	0.68	0.70	0.72	0.78	0.81	0.88	0.89
15	0.69	0.70	0.73	0.78	0.81	0.87	0.88
50	0.69	0.70	0.73	0.78	0.80	0.87	0.88
25	0.69	0.71	0.73	0.78	0.80	0.86	0.87
30	0.70	0.71	0.73	0.78	0.80	0 - 85	0.86
35	0.70	0.72	0.74	0.77	0.80	0.85	0.85
40	0.71	n.72	0.74	0.77	0.79	0.84	0.85
45	0.71	0.72	0.74	0.77	6.79	0,83	0.84
50	0.72	0.73	0.74	0.77	0.79	0,83	0.83
55	0.72	0.73	0.75	0.77	0,79	0.82	0.82
60	0.73	0.73	0.75	0.77	0.79	0.81	0.82
65	0.73	0.74	0.75	0.77	0.78	0.81	0.81
70	0.74	0.74	0,75	0.77	0.78	0.80	0.80
75	0.74	0.75	0.75	0.77	0.78	0.80	0.80
A O	0.75	0.75	0.76	0.77	0.78	0.79	0.79
85	0.75	0.75	0.76	J.77	0.77	0.78	0.79
90	0.76	0.76	0.76	0.77	0.77	0.78	0.78
95	0.76	0.76	0.76	0.77	0.77	0.77	0.77

YARN BULK DENSITIES OF BLENDS OF THE IMPORTANT COMMERCIAL FIBERS

(FIR. DEN. = 1.32)	1.14	1.17	1.22	1.30	1.38	1.52	1.54
5	0.59	0.69	0.72	0.77	0.81	0.89	0.90
10	0.68	0.70	0.73	0.77	0.81	0.88	0.89
15	0.69	0.70	0.73	0.77	0.81	88,6	0.89
20	0 69	0.71	0.73	0.77	0.81	0.87	0.88
25	0.70	0.71	0.73	0.77	0.81	0.86	0.87
30	0.70	0.71	0.74	0.77	0.80	0.86	0.87
35	0.71	0.72	0.74	0.77	0.80	0.85	0.86
4 0	0.71	0.72	0.74	0.77	0,89	0.85	0.85
45	0.72	0.73	0.75	0.77	0.80	0.84	0.85
50	0.72	0.73	0.75	0.77	n.eo	0.83	0.84
55	0.73	0.74	0.75	0.77	0.79	0.83	0.83
60	n.73	0.74	0.75	0.77	0.79	0.82	0.83
65	0.74	0.75	0.76	0.77	0.79	0.82	0.82
70	0.74	0.75	0.76	0.78	0.79	0.81	0.81
75	0.75	0.75	0.76	0.78	0.79	0.81	0.81
80	0.75	0.76	0.77	0.78	0.79	0.80	0.80
85	0.76	0.76	0.77	0.78	0.78	0.79	0.80
90	0.77	0.77	0.77	0.78	0.78	0.79	0.79
95	0.77	0.77	0.78	0.78	0.78	G.78	0.78

YARN BULK DENSITIES OF BLENDS OF THE IMPORTANT COMMERCIAL FIBERS

(FIB. DFN. = 1.38)	1.14	1.17	1.22	1.30	1.32	1.52	1.54
5	0.68	0.70	0.72	0.77	0.78	0,89	0.90
10	0.68	0.70	0.73	0.77	0.78	0,89	0.90
15	0.69	0.71	0,73	0.77	0.78	0.88	0.89
5.0	0.70	0.71	0.74	0.78	0.79	0.88	0.89
25	0.70	J.72	0.74	0.78	0.79	0.87	0.88
30	9.71	0.72	0.75	0.78	0.79	0.87	0.88
35	0.72	0.73	0,75	0.78	0.79	0,87	0.87
40	0.72	0.74	0.75	0.79	o.79	0.86	0.87
45	0.73	0.74	0.76	0.79	0.79	0,86	0.86
50	0.74	0.75	0.76	0.79	0.80	0.85	0.86
55	0.74	0.75	0.77	0.79	0.80	0.85	0.85
60	0.75	0.76	0.77	0.79	0.80	0.85	0.85
65	0.76	0.77	0.78	0.80	0.80	0.84	0.84
70	0.77	0.77	0.78	0.80	0.80	0.84	0.84
75	0.77	0.78	0.79	0.80	0.81	0.83	0.84
A 0	0.78	0.79	0.79	0.80	0.81	0,83	0.83
85	0.79	0.79	0.80	0.61	0.81	0.83	0.83
90	0.80	0.80	0.80	0.81	0.81	0.82	0.82
95	0.81	0.81	0.81	0.81	0.81	0.82	0.82

YARN BULK DENSITIES OF BLENDS OF THE IMPORTANT COMMERCIAL FIBERS

(FIB. DEN. = 1.52)	1.14	1.17	1.22	1.30	1.32	1,38	1.54
(%) 5	0.68	0.70	0,73	0.77	0.78	0.82	0.91
10	0.69	0.71	0.73	0.78	0.79	0.82	0.91
15	0.70	0.71	0.74	0.78	0.79	0.83	0.91
20	0.71	0.72	0.75	0.79	0.80	0.83	0.91
25	0.72	0.73	0,76	0.80	0.81	0,83	0.91
30	0.73	0.74	0.77	0.80	0.81	0,84	0.91
35	0.74	0.75	0,77	0.81	0.82	0.84	0.90
4 ()	0.75	0.76	0.78	0.81	0.82	0.85	0.90
45	0.76	0.77	0,79	0.82	0.83	0,85	0.90
50	0.77	0.78	0.80	0.83	0.83	0.85	0.90
55	0.78	0.79	0.81	0.83	0.84	0.86	0.90
60	0.79	0.80	0.82	0.84	0.85	0.86	0.90
65	0.80	0.81	0,83	0.85	0.85	0.87	0.90
70	0.82	0.82	0.84	0.85	0.86	0.87	0.90
75	0.83	0.83	0.84	0.86	0.86	0.87	0.90
8.0	0.84	0.85	0.85	0.87	0.87	0,88	0.50
85	0.85	0.86	0.86	0.87	0.88	0.88	0.90
90	0.87	0.87	0.88	0.88	0.88	0.89	0.90
95	0.88	0.88	0,89	0.89	0.89	0.89	0.90

TABLE II

YARN BULK DENSITIES OF BLENDS OF THE IMPORTANT COMMERCIAL FIBERS

(5)	1.14	1.17	1.22	1.30	1.32	1,38	1.52
5	0.68	0.70	0.73	0.77	0.78	0.82	0.90
10	0.69	0.71	0.74	0.78	0.79	0.82	0.90
15	0.70	0.72	0.74	0.79	0.80	0.83	0.90
20	0.71	0.73	0,75	0.79	0.80	0,83	0.90
25	0.72	0.73	0.76	0.80	0.81	0.84	0.90
30	0.73	0.74	0.77	0.80	0.81	0.84	0.90
35	0.74	0.75	0.78	0.81	0.82	0,84	0.90
4 0	0.75	n.76	0.79	0.82	0.83	0,85	0.90
45	0.76	0.77	0.79	0.82	0.83	0,85	0.90
50	0.77	0.78	0.80	0.83	0.84	0,86	0.90
55	0.78	0.80	0.81	0.84	0.85	0,86	0.90
60	0.80	0.81	0.82	0.85	0.85	0,87	0.90
65	0.81	0.82	0.83	0.85	0.86	0,87	0.90
70	0.82	0.83	0.84	0.86	0.67	0,88	0.91
75	0.84	0.84	0.85	0.87	0.87	0,88	0.91
80	0.85	0.85	0.86	0.88	0.88	0.89	0.91
85	0.86	0.87	0.87	0.88	0.89	0.89	0.91
90	0.88	0.88	0.89	0.89	0.89	0,90	0.91
95	0.89	0.89	0.90	0.90	0.90	0.90	0.91



MAXIMUM WEAVABILITY TABLE

TABLE III. MAXIMUM FILLING COVER FACTOR IN TERMS OF WARP COVER FACTOR, BETA FACTOR, AND YARN BULK DENSITY

This table provides solutions for the maxim: weavability equations (3c) for:

- A. Plain weaves, 2-harness B. Twills, 3-harness
- C. Twills and crowfoot, 4-harness
- D. Sateens, 5-harmess
- E. Oxford weave

For each yarn bulk density value listed below there is a section of Table III for each of the above weave types on the page indicated below:

Yarn Bulk Density	Plain Weave	Three Harn.	Four Harn.	Five Harn.	Orford
•54 •55	65	112	161	215 216	277
•55 •57	66	113	162	217 218	278
.58	67	114	163	219	279
•59 •60				220 221	
.61 .62		¢		222	
.63				223 2 2 4	
.64 .65	68	115	164	225 226	280
.66	69	116	165	227	281
.65 .66 .67 .68	70 71	117	166 167	228 229	282 283
.69	72	119	168	230	284
.70 .71	7 3 74	120 121	169 170	2 31 2 32	285 28ර
.72	75	122	171	233	287
•73	76	123	172	234	288
.74	77	124	173	235	289
•75 •76	78 79	125 126	174 175	2 3 6 2 3 7	290 291
.77	80	127	176	238	292
.78	81	128	177	239	2 93
•79	82	129	178	240	294
.80 .81	83 84	130 131	179 180	241 242	295 296

Yarn Bulk Density	Plain <u>Weave</u>	Three Harn.	Four <u>Harn</u> .	Five <u>Harn</u> .	Oxford
.82	85	132	181	243	297
.83	86	133	182	244	298
.84	87	134	183	245	299
.85	88	135	184	246	300
.86	89	136	185	247	301
.87	90	137	186	248	302
.88	91	138	187	249	303
.89	92	139	188	250	304
.90	93	140	189	251	305
.91	94	141	190	252	306
.92	95	142	191	253	307
.93	96	143	192	254	308
.94 .95 .96 .97 .98	97	744	193 194 195 196 197	255 256 257 258 259	309 310 311 312 313
.99 1.00 1.36 1.48 1.50	98 99	145 146 147 148	198 199 200 201 202	260 261 262 263 264	314 315 316 317 318
1.77	100	149	203	265	319
2.00	101	150	204	266	320
2.36	102	151	205	267	321
2.50	103	152	206	268	322
2.75	104	153	207	269	323
2.95	105	154	208	270	324
3.25	106	155	209	271	325
3.54	107	156	210	272	326
3.75	108	157	211	273	327
4.00	109	158	212	2 7 4	328
4.13	111	159	213	275	329
4.60		160	214	276	330

The overall range of warp cover factors is from 8 to 62. However, depending upon the yarn bulk density and/or the weave type the range may be less than this.

Beta factors range from 0.5 to 2.0

See Sections in the body of the report for:

Computation and organization of Table III (3c)

How to use Table III (5)

Examples of use of Table III (6)

Basic assumptions and limitations of tables (7)



PLAIN WEAVE

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.54

α.																	
OVER								96	1	1		1		19.8	1		
- AC10R	0	9.0	0.7	60	0.0	1.0	। स्त । । स	1.2	1	4) and	9	1.7	1,8		2.	0
60	0	.0	0	i) ·		9		0		. 0	0	**	19.	17,	17	8
٥								0		•	•	Ġ.	N	2	6 of	15	_
								8	80	80	4	•	4	4	14.	15	
				•	•	7	4	'n	3	2	•	4	4	*	14.	41	
			•	•	5	;	W	ä	2	3	5 7	3	4	•	14.	4	
	•	•	13.6	11.9	11.8	11.9	12.2	12.4	12.7	13.0	13.3	13.6	13.8	14.1	14.3	·	
	0		0	•	1	-	•	2	N		•	•	9	•	*	₽ •1	•
15	•	•	•	•		ed	=	8	3	8	P)	3	3	3	14.	4	-
	8	•	•	0	0	-	-	ö	2	°	•	5	63	3	54.	4	
	•	•	•	0		14.0	11.5	11.9	12.3	12.7	13.0	13.3	13.6	13.9	14.1		
	•	•	•	•	0	0	-	+	2	2	2	3		3	14.	14	
	7.6		9.1					1	Ċ.	2	07)	m	10	m	44.	4	17)
	•	•	•	•	0	0	=	+	2	2	8	3	10	2	14.	14	
	•	•	•	•	0	0	+	+	2	2	~	, ,	m	2	14.	14	
	•	8.2	0.6	9.7	10.3	10.8	11.3	11.8	12.5	12.6	12.9	13.2	13.5	13.8	4	+ +	1 70
	•	•	•	•		0		-	2	N	2	٠ ا	٠ ا	9	+-	*	
		•	•	•	•	•	-	+	ò	ŝ	N	, ,	·		*	*	
25	•	•	•	•	0		-	+	ċ	3	2	17		3	44	14	
	•	•	•	•		•	-	;	٠ د	2	2	, M	, P	.	44	1	_
	•	•	•	•		0	7		٠ د	Ċ	~	m	3	2	14.	4	-
	•	•			10.2	10.8	11.3	11.7	12.1	12.5	12.9	13.5	13.5	13.8	14.1	14.	-
	7.2	8.1	8.0	9.6	•	0	• •4	+	ċ	2	8	M	n	m	14.	14	m
	•	•		•		6	-	+	8	2	~	1	P)	2	14.	4.4	
36	7.2	8.1	8.9	9.6	10.2	10.7	11.3	11.7	12.1	12.5	12.9	13.2	13.5	13.8	1.4.1	+	m
	•	•	•	•	0		-1	+	5	2	~	5	, 10	3	14.	4	



MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.56

ス () ()	,		1					BET	<	!		1	!	,	(1	
« ~ ·	0.5	0	6.7	. —	6.0	1.0	-	1.2	1	4			+	1.8	4	8	-
80 0		00		00		00	00		0.0		20.5	17.5	0.	16.2	19.1	4 4 6 6 .	0.0
O ਜ਼ U P 4	00000	1000 1000 1400 1400	100°, 117°, 11°,	0, 0. 12.7	11.5 11.5 11.5 11.5 11.5	00000 10000 4000	0 8 8 8 8 8 9 8 9 9 9 9 9 9 9 9 9 9 9 9	64444 6446 6466 6466 6466 6466 6466 64	24 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	24888 74888 74884	44444 84888 88888 88864	444 644 646 646 646 646 646 646 646 646		24444 27.5.8.8	4 4 4 4 4 4 4 4 6 10 10 10 10 10 10 10 10 10 10 10 10 10	2 4 4 4 2 4 4 4	N00@N
4444 9846 9	11.2 9.0 8.3 8.0 7.8	10.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	2 4 4 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	10001	211111 2111111111111111111111111111111	111.9	8666	44444 44444 44444 44444	20000 00000	100 100 100 100 100 100 100 100 100 100	4 4 4 4 4 6 4 6 6 6	6.6.6.6.6.6.6.6.6.6.6.6.6.6.6.6.6.6.6.	2 7 4 4 4 0 0 0 0 0 0	****	* * * * * * * * * * * * * * * * * * *	~~000
20 22 24 24	V V V V V V V V V V V V V V V V V V V	00 00 00 00 00 10 4 4 4 10	00000 WUUHH	99999	00000 00000 00004	+0000		11222	4 . 4 4 4	22224 22224 88888	000000 000000 000000		80 80 80 80 80 80 80 80 80 80 80 80 80 80 80 80	: 'तनन १११	44444	****	***
2222 2027 2027 2027	V V V V V V V V V V V V V V V V V V V	0 0 0 0 0 0 0 0 0 0		00000				111111111111111111111111111111111111111	44444 4444	22 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	กราช ค.ศ.ศ.ศ.ศ.ศ.ศ.ศ.ศ.ศ.ศ.ศ.ศ.ศ.ศ.ศ.ศ	**************************************	 		4444	* * * * *	•••••
321	7.7.	8 8 8	000	V. 0 V. 0	000	11.0	11.5	6.00	4.21	12.08 12.08 12.08	+++ % % # ++	4 4 4 8 8 8 8	# # # # # # # # # # # # # # # # # # #	र । । । व च च च च च	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	4 4 4	• • •

3

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF MARP COVER FACTOR AND BETA

YARN BULK BENSITY #0.58

1		04	N 4 N H O	0000	00000	00000	
	NI	10.	5 15 15 15 15	W 4 4 4 4	44444	****	4 4 4
		•	0 N O 0 0	~~~~	00000	•••••	000
(200	2 2 2 2 2 4 4	44444	4444	* * * * * * * * * * * * * * * * * * *	444
• 1		4-4 Ch	Necon	W4444	nnnnn	nnnnn	50 50 50
	•	100	W W 4 4 4	44444	* * * * * * 	4444	444
1	• (N 0 0 4 N	~~~	40000	00000	000
l		17	84444	4444	****	****	4 ¥ 4 H H H
		. 6	84444 67840		V V V V	できるるる	7.7
			66666 6666	98999	ਜਜਜਜ	न ज न न न	स्त स्त स
1	• 1	0.80	80 4 4 80 80 0 0 0 0 0 0	nnnn	44444	44444	444
	1	C4	~~~~	ended Boded	# # # # # # 0000	99999 9999	A A A
	+	00	04888 04888	nnnnn	BBBBB	BBBBB	222
	10		@ r @ p =	00011	V 000G	00000	
	8 ← 1 (8 (4444	22222	22222	22222	12
ш			2640	6448N	~~~~~	00000	999
	•		-व्यक्ति'व्यक्ति	क्षिक के के ले	न ने ने न न	न न न न न	न न न
	-		0 V W W W O V W W W	20000	88777	****	7.4
		•		80848 44444	80000	4444 00000	+ + + + + + + +
		00	00488				
	. 0		60 60 60	4:4060	****	***	• • •
	0	00	10000		00000	00000	
			96	00400	44000	00000	000
	•		14.4 00004		0 0 0 0 0 in'n'n'n'n	90000	000
				74008			
	•		70000	44	• • • • •	0000	0 ~ 0
	-		40000		0 00 0 0 0 - 0 0 0 0 0	10 4 4 4 %	
		•	4	0 W 0 W 0		so to to to to	
		00	00000	40000			
		1		~			
	B K						
Q W (X	60 O	0 4 0 M 4				
₹ C () क्वी (क्वी (क्वी (क्वी (क्वी	। स्त्री (स्त्री) स्त्री (स्त्री)	00000	~~~~	10 10 10

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.65

0 0 0 0 0 0 0 0 0 0 0	6 1.7 1.8 1.9	22.5 19.8 18.7	7 17.2 17.0 17.0 17 1.1 15.1 16.2 16.3 16 1.4 15.6 15.8 16.0 16 1.1 15.3 15.6 15.8 16	1.8 15.1 15.4 15.6 15 1.7 15.0 15.3 15.6 15 1.7 15.0 15.3 15.5 15 1.6 14.9 15.2 15.5 15 1.6 14.9 15.2 15.5 15	1.6 14.9 15.2 15.5 15 1.6 14.9 15.2 15.5 15 1.5 14.9 15.2 15.5 15 1.5 14.9 15.2 15.5 15 1.5 14.9 15.2 15.5 15	1.5 14.9 15.2 15.4 15 1.5 14.8 15.2 15.4 15 1.5 14.8 15.2 15.4 15 1.5 14.8 15.2 15.4 15 1.5 14.8 15.1 15.4 15	1.5 14.8 15.1 15.4 15 1.5 14.8 15.1 15.4 15
1 1 1 1 2	\$. A . S	00	2 16.9 17 2 18.9 15 3 14.9 15	2. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4.	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	8 14.1
A	٠. د	00	0. 23 17.2 16 3 15.1 15 2 14.4 14 7 14.0 14	22 22 22 22 22 22 22 22 22 22 22 22 22	2000 2000 2000 2000 2000 2000 2000 200	40.00 40	9 13.3 13
96	1	00	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	122.4 122.4 122.4 122.4 123.4 133.4	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	44444 44444	12.4 12.
6	0.9 1.		000MM		 ਜਜਜਜ	संस्थान न	÷.
1	0.7 0.8	00	0. 0. 0. 0. 0. 0. 0.	2 4 7 4 2 5 4 2 5 4 5 6 5 6 5 6 5 6 5 6 5 6 5 6 5 6 5 6	0.0 9.9 40.7 9.9 40.7 6.9	44444 0000 0000	.8 10.5
1 1 1 1	.5 0.6			411 4110 9100 6100 6100 6100 6100 6100 6100 6	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	0.000	60 0

WARP

HAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.66

	3 1.4 1.5 1.6 1.7 1.8 1.9 2.0	0 0 0 0 24.0 20.4 19.1 18.5	0. 26.1 19.5 19.1 17.5 17.3 17.2 17.2 17.7 16.7 16.7 16.4 16.5 16.6 5.4 15.4 15.4 15.6 15.8 15.9 16.1 16.3 4.6 14.8 15.0 15.2 15.5 15.7 15.9 16.2 4.2 14.5 14.8 15.0 15.3 15.6 15.6 15.8 16.1	3.9 14.3 14.6 14.9 15.2 15.5 15.7 16.0 3.8 14.2 14.5 14.8 15.1 15.4 15.7 16.0 3.7 14.1 14.4 14.8 15.1 15.4 15.7 15.9 3.6 14.0 14.4 14.7 15.1 15.4 15.6 15.9 3.6 14.0 14.4 14.7 15.0 15.3 15.6 15.9	3.5 14.0 14.3 14.7 15.0 15.3 15.6 15.9 3.9 13.9 14.3 14.7 15.0 15.3 15.6 15.9 3.5 13.9 14.3 14.7 15.0 15.3 15.6 15.9 3.5 13.9 14.3 14.6 15.0 15.3 15.6 15.8 3.5 13.9 14.3 14.6 15.0 15.3 15.6 15.8	3.5 13.9 14.3 14.6 15.0 15.3 15.6 15.8 3.5 13.9 14.3 14.6 15.0 15.3 15.6 15.8 3.4 13.9 14.3 14.6 15.0 15.3 15.6 15.8 3.4 13.9 14.3 14.6 15.0 15.3 15.6 15.8 3.4 13.9 14.3 14.6 15.0 15.3 15.6 15.8	3.4 13.9 14.3 14.6 15.0 19.3 15.6 15.8 3.4 13.9 14.2 14.6 14.9 15.3 15.6 15.8 3.4 13.9 14.2 14.6 14.9 15.3 15.6 15.8
	1.1	00	4 V 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	22 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	1000 000 11111 1212 1213 1314 1314 1314 1314 131	00000 1111111 111111111111111111111111	9 9 12 9 12 5 12 5 13 5 15 15 15 15 15 15 15 15 15 15 15 15 1
	0.9	.00	2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	64900	211111 2111111111111111111111111111111		# # # # # # # # # # # # # # # # # # #
	.7	00		94888 94888 94444 47846	211000 21000 20000 20000 20000	99998 14444 10000 10000 10000	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
	9.0			16.8 12 10.4 11 5.9 10 9.6 10			0.00
	10	00	00000	14.0 10.0 9.3 8.8			@ @ @
ET REI	X	600	ଠ କ ଓ ୭ ୪ 'କ'ଟାଟା କାଟା			8 8 8 8 8 8 8 8 8 8 8 8	010



MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.67

PLATE WEAVE FABRICS

VER								BET					i			•	;
	0.5	0	6.7		0.0	1.0	+ + +	4	P	4	5	1.6	1.7	1.8	1,9		
; ; ; 00 05		• •	66		00				00		.00	, ,	0.	24.	R	55 50 50	10 0
O 규 N P 약 :하 하 하 하 하	00000	00000		000004		147860 14560 14560	00V48 4400	04044 04044 0000	0 0 0 4 4 0 0 0 7 6 0 0 7 6	82 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	21 日東直出 日島15 15 4 15 6 16 16	411111 800000 800000	111111 1005 1009 1009	7.00 E	4.00 to	V 0 0 0 0 5 5 5 5 5 5	200020
		21.5 111.7 10.5 10.0	24444 2404 07004	9.6.6.4	122 122 142 143 143 143 143 143 143 143 143 143 143	800000 800000 800000	30000 44000	44444 6446 6446	48886 48886 48886	44444 48044	44444 74444 7465	0.0444 0.0444	50 50 75 50 50 75 50 50 75	44444 66666	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	99999	44500
	∞ ∞ ∞ ∞ ∞ ∞ ∞	00000 N4000	80000 0000 0000	44444444444444444444444444444444444444	44444 44444 44664	26666	77.77 7.7.74 7.7.49	889999 888888 88888	N 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4444	4444	4 4 4 4 0 0 0 0 0 0		44444 4444	155.7 155.7 157.7 157.7	99999	00000
		00000	0 C 9 P P	100 H	***** 	44444 6666 6666	4444 200000 20000	 	99888 99888	4444	* * * * * * * * * * * * * * * * * * *	444 444 7777		8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	けらららら	**************************************	00000
	• • •	0.00	600	10.7 10.7 10.7	4 4 4 	12.0 12.0	12.6 12.6 12.5	+++ +++ +++	2 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	444	444	14.7 14.7 14.7	15.1 15.1 15.1	2 4 4 4	15.7 15.7	5 5 5	000

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.63

x > 0						1		BET		1		1	1	1	1	7 8 1	ı
< .∼	0.5	0	0.7		0	1.0		1.2	64.1	, -1	1.5	1.6	4	-		2	
		60	 C C							00)	00	30.3	24.6)	49.	· N
	00000			MGGGG		5 0 0 20 10 4 00	00748 000	20:444 00044 4000	0 8 9 8 0 8 9 8	0 / 10 mm 4 m	24 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	##### ###############################	# 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	44444	44444 70000	N 0 0 0 0	NO 04 N
€ 6 € 6	9 9 9 9	11000	894460 894400 47478	8095C	4444 6449	24444 26666 26667	20400 20400	日本ままま ででででで	44 B B B B B B B B B B B B B B B B B B	44444 W4550	44444	24444 2564 2460	2000 2000 2000 2000 2000	まままま できらき ファクタク	44444 85550	99999	2224
	න න න න න න න හ 4 ව	00000 00400	40000	40000 44000 44000	44444	4444 4444 44444	2222 2223 2223 2225	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	800000 800000	4444	4 4 4 4 4 6 10 10 10 10	4 4 4 4 4 0 0 0 0 0	150.00	ង	4 4 4 4 4 6 6 6 6 6 6 6 6 6 6 6	\$ \$ 9 \$ 9 \$ 9	
800000 80000	80 80 80 80 80 80 80 80 80 80 80 80 80 80 80 80 80	00000	44444	14 4 4 4 4 4 0 0 0 0 0 0 0 0 0 0		44444 8888 8888	2001 2001 2001 2007	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	PER 2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	लन्तन्त् कक्षक्ष नन्तन्त्	4444 000000	44444	51 51 51 51 51 51 51 51 51 51 51 51 51 5	44444 5556	44444 55565	9 9 9 9	ਜ਼ਜ਼ਜ਼ਜ਼ਜ਼
0 4 6	60 60 60 FI TH T	000	000	444 000 000 000	2 2 2 3 4 4	222	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	444	4 4 4 4 4 4	++++	444	4 4 4 8 6 6	44 45 40 40 40	2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2	15.8	999	ਜ ਜ ਜ



MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.59

日 年 年								96	1		1			• (
- X	0	9.0	0.7	6.0	0	1.0	-	1.2	1	-	1.5	1.6	1.7	-		• 1	. !
000	• •								00		00		0 4 .v.	22.8	23.5	19.5	
O ન (U P) 한: 편 편 : 편	 o o o o		0000	0000	0000	1 1 1 0 0 0	44 46 46 46	76.00 0.66	19.0 19.0 19.1	17.9 15.9	22.17.1 17.1 15.0	16.9 16.9 17.7	1166 1166 100 100 100	844 864 964 964	17.0 14.0 16.6	17.7 17.1 16.8 16.8	
						4	4	4	4	4	* C	5		•	•	9	
		0 ('n.	m (m 0	67) E	10 H	4 1	4	4 4	w .	יי ע	w w	NU W	•	9 4	
	11.2	20,0	1 4 4 4	110.1	1 4 4 0 0 0	126	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	0 0 K	44.0	4 4	14.8	15.7	1 4 4 0 4 4	15.7	4 6 6	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
	• •			• ; • ; •			, m	הי ה הי כ	, m	•				5	. 6	•	
0 2 0		•	00	+ +	+1 -	N' N	20	M W	W W	4 4	4 4	יו יה	יון טו	5	• W	00	
	00 00 10 4	00	100	1110	1111	122.3	111	4 m	M W W	44.0	9.4	44 50 00 00 00	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	10 10 10 10 10	15.0	16.2	
	•	•	6	0	-	2	2	į.	M	*	4	5	5	5	5	•	
	•	•		0	÷ ,	20	200	m .	M 14	4.	+	5	K. 1	5	50	9	
	• •	• •	0 0			· ~	· ~	, w	, w		4	5	. r.	5	טוט	 o .o	
2 8 2 6	88.2	9.5	10.1	10,9	11.6	12.2	12.8	43.3	13.7	14.2	14.6	15.0	15.3	15.6 15.6	15.9	16.2	
321	8 8 8 5 7 5	000	4.0 4.0 4.0	40.0 10.0 10.0	444 444 8000	12.2	12.7	# # # # # # # # # # # # # # # # # # #	13.7	444	4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	444	20 20 20 20 20 20 20 20 20 20 20 20 20 2	11 15 15 15 15 15 15 15 15 15 15 15 15 1	45.0 40.0	4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.70

	• 1	6.6		W4444	nnnnn	*****	600
!			トト 999 ਰਾਜ਼ਾਰਾਜ	9 9 9 9 9 9 9 9 9 9	4 4 4 4 4		944
	- 1	21.0	8 7 4 6 6 7 7 7 8	6666	44460		999
	i	0	50.00.00.00.00.00.00.00.00.00.00.00.00.0		800077	7,7,7	
•		20	80 N 90 90 H H H H H H	4 4 4 4 4 6 10 10 10 10	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	# # # # # # # # # # # # # # # # # # #	255
•	. 7		8 F 4 5 F		8 10 10 10 10 10 10 4 4 4	4444	444
•			5 4 6 6 6	48000	संस्थात सम्मन्	नेनेनेने	### ###
	- 1 - 1	00	07.000	55555			55.5
li i	1		日本土の も	40000	47.400 CB	~~~~	777
		00	でままままちゃうちょう	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	****	**************************************	444
•			0 0 0 W W	44444 00004	44444	4444 wwww	***
	6		2000×	40040		99999 9999	
	+	00	00004	• • • • • • • • • • • • • • • • • • •	****	888888 888888	9 9 9 9 9 9 9 9
E I			20 W	40000	****	4444	444
- ;			(को को।को	국 N N N N :러!러 러'러 러	999999	ਅ ਅ ਅ ਅ ਜ'ਜ'ਜ ਜ ਜ	444
i	जी ।	000	000804 8040		88884 00000	00000 00000	12.8
	0			W-100 F-0	W444W	ппппп	ыыы
(00	00004	こち まままま	2 4 4 4 4	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	4 4 4
	0.9			80000 07840	96677	よまままま アアア 6 6	666
1	6 6C		8	edddd nnoog	4444 80440	00000	### 000
	0	•	00000	ਨਾਨ ਦੀ ਦੀ ਦੀ ਦੀ ਦਿੱਤੀ ਦੀ ਦੀ ਦੀ	ਜਜਜਜਜ	44400	000
		• •				20004	
			00000	न न न न न न	को को को को को	44444	न न न
				04140			
-	180	• •				400000	
			00000	C D + Q Q	O- 00 00 00 00	60 60 60 60 60	60 90 60
	r .						
Q W +	3 X	ω Φ	O ਜ਼ (N f) 중 'ਜ਼'ਜ਼ ਜ਼ ਜ਼ ਜ਼	10 0 N O O	04000 04004	00000 0000	32



MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF MARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.71

	T				(! !		!	8 9 €	•		, <u>(</u>				•	1	
1 × 1	0	9.0	0.7	0	0			1.2	1.3	4	4.5	1.6	1.7	1.8	70	8	0
6 00 00		00			00					00				25.5	21.6	20.	100
					00000 4									00000	00000	807700	4400K
4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	20020 20020		50 2 4 4 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	さます まま で ここ まま		11000 1000 1000 1000 1000 1000	44444 888888 9486	44888 2007	4 4 4 4 4 4 4 4 4 4 4 4 5 6 6	4 4 2 4 4 9 8 7 6 R	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	4445 6445 5445	2444 2000 2000 2000 2000 2000 2000 2000	4466	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	
	0,00,00,00 4,00,00,00	00000 0 0 0 0 0 0	7 0 0 1 1 0 0 1 0 0 1 0 0 1 0 0 0 0 0 0	4 M C C C C	0 0 0 E 6	44444 6666 6666 6666 6666 6666 6666 66	##500 ######	2000 2000 2000 2000 2000 2000 2000	4444	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	4 4 4 4 4 4 4 0 0 0 0	24444 56656 6666 6666 6666 6666 6666 666	221111 2211111 22211111111111111111111	0.000.00	6666 66666666666666666666666666666666	99999	<i>W W</i> 4 4 4
			4444 60666 60666		44444 44444 66777	44444 4444	22.00 20.00 20.00 20.00	4 4 4 4 4 5 5 5 5 6 6 6 6 6 6 6 6	444WW 000000	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	4 4 4 4 4 0 0 0 0 0 0	20000	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	ង ង ង ង ង ង ស ស ស ស ស ស ល ល ល ល ល ល		99999	4444
	8 8 8 8 8 8 8 8 8	999	100.0	11.0 11.0	111.7	12.4 12.3	12.9	24 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	9.69	444	4 4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	15.2 15.2 15.2	2 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	117. 157.00	4.64 4.64	977	444

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.72

MAR

CE C	(i 1	(1	1		1	9ET	1	8	1	!		!	•	1	
k 0 m	0.5	. 0	6	0		0	4.1	1.2	. I		. .	1.6	- I	4	-	8	9 1
•	00	-		00	00								00		22.	20	~
	00000		00000	40000	Meeco	0.00 14.7	000 N M 4 N W 4	00 H H H 70 0 0 0 0 0 0 0 0 0 0 0 0 0 0	11112 11125 33 0 11125 30 0	4444	0 0 0 0 0 0 0 0 0 0 0 0	27 4 4 4 4 4 7 9 9 4 5 9 4 8	2000 2000 2000 2000 2000 2000 2000 200	4 4 4 4 4 4 4 4 4 4 4 4 4 4 6 6 6 6 6 6	4444 8446 86079	4 4 4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6	40000
N 20 1 20 0	120 0 100 0 100 0	11 14 10 10 10 10 10 10 10 10 10 10 10 10 10	80 H H B	8 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	00000 00000	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	4 4 4 10 10 10 4 4 4 0 0 10	4444 FB400	24444 000/0000	4 2 4 4 4 5 4 2 4 4 4 5	24444 55550 70544	0 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	99999	4446	99999	VVV00
C 40104	\$ \$ \$ \$ \$ \$ \$	0.00	00000	80004 4444 6456	40000	2000 2000 2000 2000 2000	88888 88888 88888	200000 200000 200000	4444	44444 66600	2 2 2 3 4 4 5 5 5 5 6 5 6 6 6 6 6 6 6 6 6 6 6 6	4 10 10 10 10 4 10 10 10 10	7. C.	9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	44444		00000
	0 0 0 0 0 0 0 0 0 0 0	00000	00000	2 + p p p		2000 2000 2000 2000 2000 4	2000 2000 11000	44444 888888 99999	4444	44444 wwwww	4444	200000 200000 200000	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	44444 44444 64644		សសសសស
	@ @ @ 4 4 10	444	000		4 4 4 4 4 4 6 8 8	4.22	13.0 13.0	4 4 4 8 8 8 8 8	444 600	444 444 8.0.0	444	844 85.84 8.84	15.6 15.6 15.6	200 200	444	16.	W W W

YARN BULK DENSITY #0.73

0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		•		4	1.5	1.6	1.7	1.8	1.9	2.0
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0			. 0		. 0	0.	. 0	0	0	0
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0			•	•	•	•	0	#	23.	•
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	2		0		2	~	0	6	18.	
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	0.		25.	7.6	•	7	7		17.	7
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0		5	17.	8.9	•	9	•	17.0	17.2	17.
0. 0. 14.8 12.9 12.1 13. 11.9 12.9 10.7 10.8 11.3 11.9 12.9 10.7 10.8 11.3 11.9 12.9 10.7 10.7 11.8 11.9 12.9 10.7 10.7 11.8 11.9 12.9 10.7 10.7 11.8 11.9 12.9 10.7 10.7 11.8 11.9 12.9 10.7 10.7 11.8 11.9 12.9 10.7 10.7 11.8 11.9 12.9 10.7 10.7 11.8 11.9 12.9 10.7 10.7 11.8 11.8 11.9 11.9 11.9 11.9 11.9 11.9	7.9 1	2 15.	15.	5.9	•	9	6	•	16.	^
0. 14.8 12.9 12.13. 3.7 11.7 11.8 12.2 12. 9.3 10.1 16.8 11.7 12. 9.0 9.9 10.7 11.4 12. 8.7 9.6 10.5 11.4 12. 8.5 9.5 10.4 11.2 12. 8.5 9.5 10.4 11.2 11. 8.5 9.5 10.4 11.2 11.	.9 1	.8 14.9	15.2	15.4	18.7	16.0		•	16.	~
3.7 11.7 11.8 12.9 12.8 13. 9.7 10.4 11.0 11.7 12. 9.3 10.1 10.8 11.7 12. 9.9 9.8 10.6 11.7 12. 8.7 9.6 10.5 11.4 12. 8.5 9.5 10.4 11.2 12. 8.5 9.5 10.4 11.2 11. 8.5 9.5 10.4 11.2 11.	- 6. 6.	2 14.	4	5.2	E	5.	•	•	16.	9
3.7 11.7 11.8 12.2 12. 9.3 10.1 16.8 11.7 12. 9.0 9.9 10.7 11.4 12. 8.7 9.6 10.5 11.3 12. 8.5 9.5 10.4 11.2 12. 8.5 9.5 10.4 11.2 11. 8.5 9.5 10.4 11.2 11.	7	4	4	5.0	8.	ĸ.	•	•	16.	9
9.3 10.1 16.8 11.3 11.9 12. 9.3 10.1 16.8 11.7 12. 8.9 9.8 10.6 11.4 12. 8.7 9.6 10.5 11.4 12. 8.5 9.5 10.4 11.2 11. 8.5 9.5 10.4 11.2 11. 8.5 9.5 10.4 11.2 11.	7.2	6 14.	4	4.9	3	5.	5	•	16.	•
9.3 10.1 16.8 11.7 12. 9.9 9.8 10.6 11.4 12. 8.7 9.7 10.6 11.4 12. 8.7 9.6 10.5 11.3 12. 8.5 9.5 10.4 11.2 11. 8.5 9.5 10.4 11.2 11. 8.5 9.5 10.4 11.2 11.	3.0	5 44.	+	4.8	ι.	5	15.9	16.2	16.5	16.7
.3 10.1 10.8 11.5 12. .9 9.8 10.7 11.4 12. .7 9.6 10.5 11.4 12. .7 9.6 10.5 11.3 12. .6 9.6 10.5 11.2 11. .5 9.5 10.4 11.2 11. .5 9.5 10.4 11.2 11.	12.9 13	.4 13.9	14.3	®	15.1	15.5	5	•	16.	•
0 9 9 10 7 11 8 12	C	M. W.	4	4.7		10	5	•	46.	9
9 9 8 10 6 11 4 12	2.7	, M	4	4.7	×.	5	5.	•	16	ø
7 9.7 10.6 11.3 12. 5 9.6 10.5 11.2 12. 5 9.5 10.4 11.2 11. 5 9.5 10.4 11.2 11. 5 9.5 10.4 11.2 11.	2.7	2 4 3	14.2	4.7	15.1	15.4	15.8	16.1	16.4	16.
. 5 9.6 10.5 11.3 12. .5 9.5 10.4 11.2 11. .5 9.5 10.4 11.2 11. .5 9.5 10.4 11.2 11. .5 9.5 10.4 11.2 11.	2.6	2 13.	4	4.6	8	5.	5.	•	16.	Ø
.5 9.6 10.5 11.2 12. .5 9.5 10.4 11.2 11. .5 9.5 10.4 11.2 11. .5 9.5 10.4 11.2 11.	12.6 13	.2 13.7	•	9	5	5.	5	•	16.	9
5 9.5 10.4 11.2 11. 5 9.5 10.4 11.2 11. 5 9.5 10.4 11.2 11.	- 2	2 4 3	4	4.6	ĸ.	, r	5	9	16.	•
5 9.5 10.4 11.2 11. 5 9.5 10.4 11.2 11.	12.6) M:	4	4.6	8	5	5	•	16.	9
.5 9.5 10.4 11.2 11. 5 9.5 10.4 11.2 11.	12.6	- M	4	4.6	8	5	5	•	16.	•
.5 9.5 10.4 11.2 11.	12,51	4 6	4	4.6	8		15.7	16.1	16.4	16.
	i ÷i	.1 13.7	14.1	14.6	15.0		5	•	16.	•
.t 7.11 - 10 C.6 +.	12.5 1	1 13.	14.	4.6	ĸ		15.7	16.1	16.4	16.6
.4 9.4 10.3 11.2 11.	12.5 1	1 13.	14.	4 .6	ĸ.	_		.	16.	٠.
8.4 9.4 10.3 11.1 11.9	12.5 13	.1 13.6	+1	۰	•	ъ.	·.	•	16.	9

YARN BULK DENSITY #0.74

4 W P			I	!	1	!	1	က မ	1	1	•	1		•	1		
X X X X X X X X X X X X X X X X X X X	0.5	9.0	0.7	6	0.0	0	4.4	1.2	ו מו	4		1.6		• •		5	
		i												41.1	2 4	21.	ı
	00000				# 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	100. 100. 15.7	### ### ### ### ### ### ### ### #######		1111 1100 1100 1100 1100 1100 1100 110	11120 14470 14470 14470	4444 4666 4666 4666	25 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	20.4 17.9 16.6 16.3	44444 64444 84484	44444 67779		■ ♥ ₹ ♥ ♥ ₹
		·	4 4 0 4 4	4 10 10 10 H	4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	48888	44888 44888 807.08	44444 44444 44444	24444 24444 24440	88844 84000	##### ##### ######	######################################	16.1 16.1 15.0	44444 6464 6466	44 44 46 46 47 47 47 47 47 47 47 47 47 47 47 47 47	7 4 4 4 4 6 4 6 6 6 6 6 6 6 6 6 6 6 6 6	~~~~~
00000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	40000 9990 70000	10.9 10.8 10.7 10.6		8 8 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	12.9 12.9 12.7 12.7	44888	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	* * M M M M M M M M M M M M M M M M M M	44444	44444 8 8 8 8 8 8 9 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	44444 500000 600000	444445 455 456 456 456 456 456 456 456 4	146.00 146.00 146.00 146.00	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	
STAVAILABL	@ @ @ @ @ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	00000 V000N	00000 00000 000004	######################################	122 122 122 122 123 123 123 123 123 123	112.7	22223 23223 23223	88888 88888 78888 7888	44444 90000	4444	 	ដដ្ឋក្នុង សល់ស្គីស្គ ស្គីស្គីស្គីស្គ	11111111111111111111111111111111111111	4444 4444 4444 4444 4444 4444 4444 4444 4444		**************************************	
10 10 10		0 0 0 0 0 0	4 4 4 4	1111 1111 1111	12.0 12.0 11.9	12.6 12.6 12.6	113 13.0 13.0	13.7	444	14.7 7.4.7		15.5 15.3 15.3	11.55 15.56 15.68	16 16 16 16	116 16 16 16	16.8 16.8	

YARN BULK DENSITY = 0.75

ARP OVER								96		1	-			1	1	1	
FACTOR (K1)	0.5	9.0		. 0	0.0	0 .	; + ; + ; +	1.2			1.5	1.6	1.7	4.9	6	2	
. 00		. 0			i					• 0	6	•	0		0	0	1
												•	•		'n	•	~
												4	0	•	•	6	
								0	8	+	•	8	8	80	80	œ 1	
							6	6	7	7	£.				<u>,</u>		v o .
	•	•				19.7	16.9	16.3	16.2 16.2	 	প্র ল	16.5	16.7	16.9	17,2	7.	❤ (
					•		,				• 8	•	•	•	•	•	u
		0	+	4	4	4	4	+	υ.	5		•	•	•	•	7.	+ 1
• •	0	17.7	13.4	13.2	13.4	13.7	14.1	14.5	14.9	15.2	15.6	15.9	16.2	16.5	16.8	17.1	_
		~	2	2	%	1	×,	÷	÷	ت		٠.	•	• ·	•	. .	.
	ij	ij	+	?	2	m	, ,	÷	÷	ر د	50 1	S	•	•	•		_
	0	•	;	+	5	1	m	4	*	2	٠.		•	0	•	:	_
	•		+	-	2	'n	ь.	4	4	4	E .	5	•	•	•	•	•
		10.1	10.9	11.6	12.3	12.9	13.5	14.0	14.5	14.9	15.3	15.7	16.0	16.3	16.6	•	•
	•	6	6	+	?	2	Б.	m.	÷	*	.	ر. د	•	•	•	•	•
9	80	6	6	:	;	2	, ,	, P	4	4	E	, N	•	6	•	•	•
4	80	•		1.	•	'n	•	m	÷	4	.		•	•	•	•	•
ر بر	60	•	c		2	2	ь.	1	4	4	K	N.	•	•	•	•	•
• •	80	•	6	, ,	2	~	5	ы.	4	4	5	ς.	•	•	•	•	_
	•		10.6		5	12.7	13.3	13.9	14.3	14.8	15.2	15.6	16.0	16.3	16.6	16.9	_
	•	•		+	2	2	, M	3	4	4	.	Ŋ.		•	ò	•	•
	8.5	9.6	•			2	M	8	.	4	1 0	1 0		•	•	•	_
	•		C	•	2	,	M	177	4	4	10	150	10	•	•	•	_
	•	•			2		5	5	14.3	14.8	15.2	15.6	15.9	16.3	16.6	•	•
32	8.5	9.6	10.5	11.3	12.0	12.7	13.3	13.8	•	4	R .	5	5	•	•	•	•

YARN BULK DENSITY #0.76

		60	NULVE	00	00000	00000	000
	2	• • •	49. 47. 47.	4444 4474 4474	2,22,2	2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	17. 17.
	- 1	9.9	44400	C O O O O	87777	7,7,7,	7.09
	80		226	70000	N. d. d. d.	4444	444
			20 14 17 16	99999	9999	99999	46 46
1	-	9.0	21.5 118.3 116.9	4.61 4.61 4.62 5.61			16.0 16.0 16.0
	1.6	00	9.7.9	6 6 10 10 10 4 6 6 6 8	8 8 8 7 7	ろうろうろう	ろうろ
ĺ	.5			88888 87688 44444	4444W		8888 888 888
1			ने ने ने ने	ने ने ने ने न	न न न न न	ने ने ने ने न	न न न
1	-	00	17.0 17.9 15.4 15.4	22444 22772 25744	WWW44	4444	44.9 44.9 9.44.9
	1.3		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	20.411 20.411 6.44	44444	44444 8.8.444	4 4 4
8	1.2		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4444 96480	4444	44400	13.9
		ì	0000 M	444WW		4444	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
1	v-		71.	4 8 6 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	# 0 0 0 0	22.22.2 22.23.3 23.33.3	0 0 0 0 0 0 0
	6.0	00		4 10 10 10 10 10 10 10 10 10 10 10 10 10	2.5.5.5	22222	4.62
	1 00	•		74.000 44.000	# P 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	200444 200444	
	7	;		0 8 8 P 4	ਜ'ਚ:ਚ'ਚ:ਚ ਜ © 0 © N	++++++++++++++++++++++++++++++++++++++	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6
	. 6	900	00000	25. 12. 11.	111111	0000	900
	10		00000	24.3 12.5 11.3	4.001	88777	6.6 9.6
	0.5	0.0		110000000000000000000000000000000000000	0 0 0 0 0 0 0 1 0 0		8 8 8 6 6
ARP OVER	FACTOR (K1)	1 1 00 O	© + (U P) 수 (대 (대 (2 5 2 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	



MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.77

	2	4	80777 80777 80408	4 M M M M M	Notes Notes Notes	44444 60000 60000	47.4
	-	9.	911111 94747	40000	9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	44 44 44 40 40 40 40 40 40
Ü	₩.	00	2.00 1.00 1.00 1.00 1.00	8 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	44444 44444 44444	44444 66666 66666	16.5
	1.7		122. 147.5 147.5	4 4 10 10 6 4 4 10 10	8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	44444 6666 66666	16.2 16.2 16.1
	•		807799 807799 80886	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 4 4 4 4 6 6 6 6 6 6 6 6 6 6	2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	24 44 42 42 42 42 42 42 42 42 42 42 42 4
		00	144.00	44444 68888 08766	4 4 4 4 4 5 6 7 6 6 6 7 6 6 7 6 8	2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
	#	00	24430 44430 46430	n n n n n n n n n n r n n n n	**************************************	4 4 4 4 4 8 8 8 8 8 6 6 6 6 6	24 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
	•		20000 20000 2000	4 4 4 4 4 4 6 6 6 6	4444	4 4 4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6	4 4 4 8 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6
89		00	6) D 4 4 4 10 10 10 10 10 10 10 10 10 10 10 10 10	04444 07848	44444	4444	444
		00	144 144 146 168	44400	200000 200000	a a a a a a a a a a a a a a a a a a a	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
	1 -/ ; 1	00	24.0	44000	44444 44000	44444	200
	0	00	0. 0. 17.6		ने ने ने ने न	न न न न न	
	0	00	00006	4 5 6 5 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	90110		4 4 4 4 4 4 8 8 8 8
	0	00			2000 2000 2000 2000	9 10.8 8 10.7 8 10.7 6 10.7	7 10.6 7 10.6 7 10.6
	0	00		000	00000	00000	000
		00	00000	0. 0. 111.7		80 80 80 80	
0. 111	A X	000		でるとの (年)年 年(年)年			

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.78

							A. A:
-		04	0 8 8 L L	アファファ	P P P P P P P P P P P P P P P P P P P	~~~~~	777
		~	4 5 5 5 4 5 5 5 5 5 5	N - + + + -	00000	90000	800
-	•	31	44496	****	7 7 4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6	99999	46.
•	60	• •	0.000.4	7.1000	77000	00000	000
•	1		0 E T T T T T T T T T T T T T T T T T T	N 9 9 9 9	99999	9699	444
;	-		0.007.40	00000 00004	40000	00000 nnnnn	8 6 6 8 8 8 8
	9		N 10 0 0 0	40040 44444	00000	00000	000
	ન !	00	3077	99999	4444 4444	5555	55.55
	20		47.04	40 80 F F		rom rom rom rom rom rom	10 10 10 10 10 10
•			8444	8 9 4 M M		निस्नेस्स	
•		00	5 4 4 4 5 4 5 6	20 50 50 50 50 50 50 50 50 50 50 50 50 50	E SE SE SE SE	N N N N N	80 80 80
3	100	1	4000	₽ 00 0 0	00 00 N N N	N 0 0 0 0	000
	-		444	END E	4 4 4 4 4 H H H H H H	4 4 4 4 4 ल न न न न	4 4 4
w (0.0	0000	N4444	44444 NNUUU	4444	444
ĺ	+		0 0 0	9 N N O 9	88774	44444 9999	600
	-	00	00005		 	 	888
			00000 4 W	4 4 10 10 10 0 4 0 10 4	22222	00000	000
			2	448888 44444 44444	nnnnn HHHHHH	44444	224
-	0	• •	00000	*****	7.00.00 7.00.00	44000	122.3
	•)	• • • • •	4 60 0	00.00 //	V 0 0 0 0	N N N
		00		らまままま	~	न न न न न न न न न न	ल ल ल ल ल ल
	6.7			0400H	W W O O O	99999	7.0
		1 M		4 A A A	6 4 8 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6		8 8 8
) (0	00	00000	00894	00000	50000	000
ĺ	FU.	• •			0 N N 4 0	6 0 0 0 0	V. V. V.
!	•		00000	90000	0000	60 60 60 70 60	യയയ
2 4 1		l I	.⊐ ⊶ ∧ı × ×	10 50 50 50	0 - 0 - 0	N 0 1 0 0	0 - 0
Y O	~ ~	1				00000	



HAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.79

8 N N								in .									
ACTO (K1)	0.5	0.6	0.7	0.0	0.0	4	-	•	1.3	5 47	. 5	-	6) • i		
800	•				•	•	i)				00		00	38	250	~ 1
୍ଟ ମଧ୍ୟ ଅଟେ ଏ ମଧ୍ୟ ମଧ୍ୟ ଅଟେ ସ	00000				0000	1 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	44 66 60 60 60	00470 	0 110 147 15 15	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4444.0 44.00 50.00	4 4 4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6	23.7 19.0 17.8 17.3	1811 1817 1807 1807	こままままりのののアア	120 180 171	
	0. 0. 12.5	000000 11000 1000	1120	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	24 5 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	24 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	4444 84444 44840	44444 66444 80748	44444 55566 5566	まままままりちゅうてくちょ	4 4 4 4 4 6 6 8 8 8 6 6 9 6 8 7 6 9 6 8	999999 84886	00000 00000 00000	117 126 10 10 10 10 10 10 10 10 10 10 10 10 10	2222 2222 2222 2222 2222 2222 2222 2222 2222	44444 7777	
	00000	100 100 100 100 100 100 100 100 100 100	40.000 	400000	22222	4 5 C C C C C C C C C C C C C C C C C C	2000 2000 2000 2000 2000 2000	4 4 4 4 4 4 4 4 4 4 4 4 4 4	44444 0.0000	2022 2022 2022 2022 2022 2022 2022 202	20 10 10 10 10 10 10 10 10 10 10 10 10 10	44440	00000 00000 00000	116.8 116.8 116.7	44440 77777	まままま	
	0 0 0 0 0 0 0 0 0 0 0	110000000000000000000000000000000000000	9 0 0 0 0 9 0 0 0 0	411.7 411.7 411.7	22222 22222 2444	 	44444 64444 7777	4 4 4 4 4 9 6 6 6 6 6 6	44444 0 7 7 7 7	4 4 4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	44444 66666 66666	44444	24 26 26 27 26 27	7777 7777 6000	これできます	6000000
9 H W	@ @ @ @ @ @	9 9 9	4 4 4 0 0 0 0 0 0	999	122.	444 988 000	113 13.6	444	444 4.44	11 15 15 15 15 15 15 15 15 15 15 15 15 1	13.6	0.94 0.94 0.09	444	16.7 16.7 16.7	17.0 17.0	4 4 4 4	nnn

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK BENSITY #0.80

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BEFA

YARN BULK DENSITY #0.81

;	6	7.5	00000 94940	7 7 7 7 7 9 8 9 9 9 9 9 9 9 9 9 9 9 9 9	7777	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	7 7 7 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
,	i 🕶 i	5 6	2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	<i>PPPPP PPPPP <i>PPPPP PPPPP PPPPP PPPPPP PPPPPP PPPPPP PPPPPPP PPPPPPPP</i></i>	nnnnn NNNNN	4444	7.52
!			22.4 2 19.2 1 17.9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	17.2 17.2 17.1 17.1 17.0	17.011	0.0000	16.9
		.0	26.0 19.6 118.2 17.6	16.9 16.9 16.8 16.8	16.6 16.6 16.6	6.66.6	16.6
!	1.6		0 2 4 4 6 5 6 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6	0 0 0 0 0 0 0 0 0 0	999999 99999 99999	00000	16.2 16.2
	i vetici L		18.4 17.3	8 8 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	111111 1515 1516 1516 1516 1516 1516 15	111111 13.00 10.00	8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8
(+		36.0 149.0 16.8	44444 46666666666666666666666666666666	44444 6000000 600044	4 4 4 4 4	20 10 10 10 10 10 10 10 10 10 10 10 10 10
,	1 T		0. 20.6 17.4	######################################	446000 446000	44444	444 999
8 H	1.2		000 000 1600 1600	4 4 4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6	. 4 4 4 4 4 4 4 4 4 4 6 6 10 10 10	4 4 4 4 4 4 4 4 4 4 6 6 6 6 6	444
	4	-	10000 10000 11000	24444 40880	44488 400000	0.000 0.000 0.000 0.000	13.8 13.8 13.8
-	4.0		4.7.4	24444 24499 46490	444 80 80 80 80 80 80 80 80 80 80 80 80 80	11111 11111 111111	13.2
•	0.		23.00 23.3	24444 2464 867 867 867 864	13.0 12.8 12.8 12.7	12.6 12.6 12.6 12.6	12.5 12.5 12.5
	. 0		60000	84899 84898	222 <u>4</u> 222 <u>4</u> 22109	\$ \$ \$ \$ \$ \$ \$	6 8 8 8 ·
	0.7			10000 10000 10000	44444 44444 44644	11111	110.9
	1 0			0 14.7 11.2.7	10.9	1001	110
	0.5	-		0. 0. 13.7 11.1	00000	00000 44000	80 80 80 9 9 9 9
or im	AC 70	000	0 대 전 전 전 0 대 전 전 전 0 대 전 전 전	20 9 P 80 P	22 23 24 24	2 2 2 2 2 2 2 4 4 5 5 5 5 6 5 6 5 6 5 6 5 6 6 6 6 6 6	

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.82

VER REP						1		8		1				!	1		
A X	. 0	9.0	0.7		(A)	0	्र । ५०	; • ; ; • • ;	٠ ا	4	10	9		4.8	0		
, 20 C	00	-		• •	• •						66	• •				• •	
੦ ਚ ੦ ਲ਼ ਚ ਬਚ ਚਾਂਚਾਚਾਂਚ				00000		00.00.17.8	0. 0. 16.00	0 0 0 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	0. 21.3 17.7 16.9	19.3 17.5	23.0 13.7 17.5	20.7 18.4 17.6	27.6 19.9 18.4 17.7	22.9 19.5 18.4 17.9	24.04.4 10.04.4 10.04.4	21 4 4 4 4 0 0 0 0 0 0 0 0 0 0	
	000 114 000 000 000	0 10 10 11 14 14 15	1111 12360 0350	です! ななできる きてきる		2444 6.444 6.02 8.03	20 / E	000044 00044 0000	44444 600000 600000	44444 668 800 800 800 800	44444 64664 64664	16.7 16.5 16.5	17.2 17.0 16.9 16.9	17.4 17.2 17.2 17.2	1444 1446 1446 1446 1446 1446 1446 1446	18.0 17.9 17.8 17.8	
	00000 40040	11.0 10.7 10.0 10.3	7.111	40000	10000 10000	111111 121111 121111111111111111111111	4444	4444 4444 77000	8 10 10 10 10 10 10 10 10 10 10 10 10 10	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	11 14 14 14 16 16 16 16 16 16 16 16 16 16 16 16 16	44440	16.8 16.3 16.7 16.7	17.1 17.1 17.1 17.1	***** ***** *****	と ひ ひ ひ ひ ひ ひ ひ ひ ひ ひ ひ ひ ひ ひ ひ ひ ひ ひ ひ	
	00000	1001 1001 1001 1001 1001	211111		12221 12221 12247	44000	44888 00000	,4,4,4,4 4,4,4,4 8,8,8,8,8	20000 20000	ដាជាជាជា សលសសស សលសសស	11111111111111111111111111111111111111	66666 66666 66666	16.7 16.7 16.7 16.7	17.0 17.0 17.0	44400	100 100 100 100 100 100 100 100 100 100	
0 4 4 0 0 4 4 0 0 4 4 0 0 4 4 0 0 0 0 0	9 9 8	10.1 10.0	1111	4 4 4 4 4 4 6 8 8	12.6 12.6 12.6	113. 13.3	13.9 13.9	.4 4 4 2 8 8 8	15.0 15.0	15.5	15.9 15.9	16.3 16.3	16.7 16.7 16.7	17.0 17.0 17.0	17.4	17.6 17.6 17.6	



MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.83

ARP								L									
FACTOR	0.5	9.0	0	0	0		9 🕶		1 14	4.4	,	1.6	4.7	+	-	8	
1 00 00				,	00			•	00		00	-	-	00		31.	
O + Q M 숙		00000	00000	00000		00000 00000 00000	0. 0. 12.1 17.6	4 B B O	14720 1477 16.7	19.7 16.7 16.9	0.444 0.467 0.600	21. 148.1 17.7 147.7	30.0 20.1 17.9 17.9	23 19.7 18.0 17.7	20 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	50 d d d d	04040
50 47 80 A	00004	100 100 1100 1100	123.00 123.00 123.00 123.00	SAMORT	4499	87 4 4 4 50 80 64 4 6	200444 200444	(4)44444 	4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	4 2 2 3 5 5 5 5 6 5 6 6 6 6 6 6 6 6 6 6 6 6 6	4444 4444 7447	7 4 7 6 7 8 7 9 9	24.74 10.74 10.09	044 N N	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	0 00 7 7 7 0 00 7 7 7	40000
さ さ さ さ さ さ さ も も ま さ ま さ ま な ま な ま な ま か		40000	##### ################################	22222	ਜਜਜਜ	11 12 12 13 13 14 15 15 15 15 15 15 15 15 15 15 15 15 15	9 4 4 4 4 9 0 0 0 0 0	4444 000770	11111111 000000 000000	10 10 10 10 10 10 10 10 10 10 10 10 10 1	0 + + + 0 \$ \(\phi \) \(\phi \) \$ \(\phi \) \(\phi \)	44444 6666 60000	9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	17.7.1	27774 27777 20000	こうしょう ちょうしょう	60 60 60 60
20000	80444 66666	11111 1000 1000 1000 1000 1000 1000	000000 00000 00000	40000	122.4 122.4 123.4 123.4	888888 84444	44444	0 0 0 0 0 4 4 4 4 e'd d d'd		20000 2000 2000 2000 2000 2000	44444 66666 66666	44444	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4			P P P P P	60 40 60 60 60
0 4 0			न न न		स स स	4 4 4	444	444	255 255 255	2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2	24 4 26 0 0 0 0	4.64	16.00 16.00 16.00	744	4.74	4 4 d	000

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.84

MARP COVER FACTOR [K1]	0 1 0	1 0	1 1	1 00		4	! स्त । •	E I	1 1	4	1.4	4.6	1 44	1 •	;	2	
								0.0	100	00	0.0	00		00		100	0
						000000	10000 17000 1000	14,40 16,90 16,00 16,00	1420 6000 4000	0. 20.1 17.9	44400	21.6 18.8 17.9	33.9 20.4 18.7 17.6	24 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	22.2 19.7 18.8 18.4	H O 00 00 00	naonn
K & K & & &		12.9 11.3	5 6 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	でまままる。まちちちちちちりろりさりためる	64488 83474	44444 600444	200444 20075	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	44444 68888 867.68	2000 2000 2000 2000	44444 66666 86646	17.1 16.9 16.8 16.7	47.4 47.3 47.0 47.0	V V V V V V V V V V V V V V V V V V V	44444 66677	8 8 8 8 8 9 9 9 9 9	N4000
	20000 V 4600	110 110 110 10 10 10 10	9 2 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	44500 44500	8 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	800000 800000	44444	4 4 4 4 4 0 0 0 0 0 N	4 8 8 8 8 8	222222 222222 222222	80000 99999 99777	2000 2000 2000 2000 2000	17.0 16.9 16.9	27 27 27 27 27 20 30 30	4444	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	0,0000
2222 2223 234 234	00000 00000	4 D W C C	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	44400 44400	0.00000 0.00000 0.00000	20 20 20 20 20 20 20 20 20 20 20 20 20 2	0	**************************************	ままままま で 50 50 50 50	ないない。		44444 66666 500000	2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2777	4444 6666	ななませれ	00000
	000	10.2	# # # # # # # # #	222	12.8 12.8 12.7	8 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	+ + + + + + + + +	444 4.44 6.44	15.2	で りょう マ ら な	4 4 4 9 9 9 9 9 9	2 4 4 4 2 4 6 2 8 8	16.9 16.9	17.2 17.2 17.2	17.6 17.6 17.5	447	000



MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =0.85

1	• 1	. 60	004×10	10 00 00 00 00 00 00 00 00 00 00 00 00 0	00000	60600	900
(20000	© ® © © ©	8	80 80 80 80	4 4 4
	-	00	74414 76688 76087	4444 4444 4444 4444 4444	44 7 7 7 4 4 7 7 7 7 7 7 7 7 7 7 7 7 7	7	17.7 17.7 17.7
• 1	4.8		110000	117.8 17.6 17.6 17.5 17.5	4 4 4 4 4	44555 4455	17.3 17.3
 			40111 40111 4000 4000	0.71 0.71 0.71 0.71	447.44 47.44 47.00	44444 7777 0000	17.0 17.0 17.0
	1.6	00	122.1 19.1 17.5	17.5 146.9 16.8 16.8	116.7 116.7 116.7 116.6	44444 6666 6666	16.6 16.6
	1.5	-	118.7 118.57	0.00 0.00 0.00 0.00 0.00 0.00	4 2 2 2 2 2 2 3 4 2 2 2 2 2 2 2 2 2 2 2	44444 6666 70000	116.2 16.2 16.2
	, , 		1.8.1 1.8.1	4 0 1 1 1 1 1 1 1 0 1 1 0 1 0 1 0 1 0 1	200000 00000	4 4 4 4 4 6 6 6 6 6 6 6 6 6 6	15.7 15.7 15.7
	1		00487 	4 4 8 7 9	4445 64446	50 5	15.3 15.3
9 ₩	4.2	• •	7,000	4 4 4 4 4 6 12 12 12 12 12 12 14 14	1111111 V4444 D0008	4 4 4 4 4 eleterated	14.7
	1 +		470000	44 0 60 6	44444 84488	44444 44444	444
	4.0	00	.0000	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	44444 44444 44444 44444 44444	44444 44444 6466	444 888 888
	0		00000	11111 78488 8988	8 6 4 0 0 4 4 4 4 4	20000 20000 20000	4444 222 80 80 80
		00		84444 4744 57440	4 4 4 4 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	00000 00000	122.1
	. 0			04450 04400 0404	24444 24444 24444 2664	4 5 5 5 6 7	111.2
	9.0	i	00000	11190° 12490° 12490°	40000	00000 00000 04000	10.2
	0.5	1	00000	000000 44	110 100 100 100 100 100 100 100 100 100	00000 4 10 10 10 10	9 9 9 2 1 1 1
O. W 1	KA1	60 0	(라 하 라 라 라 다 라 있 P 주	\$5 \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$		2222	30 32 32

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.86

G 111	1	,	(1			8E	1	1	1	1 1 1	1	· (1 	(
KA1	0.5	9.0	0.7	0.0	0		1	1.2		4	1	1.6	-	0 । चर्च ।	• 1	2.	0
80 0				00									. 0	• • • • • • • • • • • • • • • • • • • •	00	00	
'라 라'라'하'라	00000	00000	00000	00000	00000	20000	2000 1700 1700	200.	2000 1739 273	1484 1484 1486 1486	6 6 6 6 7 6 6 6 6 7 6 6 6 7 10	190.7 180.3 17.2	040 BV	00000 60000 44464	N 0 0 0 0 0 0 0 0	20 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	00000
8 9 N 80 A	00000	0 134.0 12.5 12.5	124.00 124.00 120.70	00488 00884	78488 78488	40444 60444 60746	4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	44444 65565	44444 44545 80000	2000 2000 2000 2000 2000 2000 2000 200	2.0000 2.0000 2.0000	4.7.1 2.7.1 1.0.7.1 1.0.0	65.45.C	117 177 177 17 10 10	8 8 8 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6	4 4 4 4 4 4 8 8 8 8 8	
	40000 40000	111 110 10 10 10 10	111111111111111111111111111111111111111	22222 22222 8486	4 B C - +	4 8 8 8 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9	4 4 4 4 4 0 8 4 4 4	N N N N 4	22222 22222 22224	24444 2000 2000 2000	8 4 4 4 P	6.644 6.644 6.66 6.66 7.	47.52	なるなっている。	147.9 147.8 147.8	0 0 0 0 0 0 H H H H H	N ज ज ज ज
20000 2000 2000	00000 04000	00000 00000 00000	44400	20000 20000 20000	888888 888888 88888	1111 1131 1131 1131 1131 1131 1131 113	**************************************	ゆうちゅう マママママ	24444 44444	2 4 4 4 4 2 2 2 2 2 2 2 2 2 2 2 2	00000 0000 0000	16.7 16.7 16.7 16.7		2000 2000 2000 2000 2000	86.60 8.60 8.60 8.60 8.60 8.60 8.60 8.60	0 0 0 0 0	
321	000	10.3 10.3	55. 55. 55. 55. 55. 56. 56. 56. 56. 56.	444	12.9	9999	4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	444	# 15 E	25.00 8.00 8.00	16.44 16.44	16.7 16.7 16.7	1.7.1	4.7.4	444	80 80 80 87 87 87	न न न

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF MARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.87

	91
040 (4)4)4 00400	00400
20.00 20.00	00000 0 7 0 2 4
2.2.4.4.4. 2.2.4.4.4. 2.2.2.2.2.2.2.2.2.	00000
.4 12.2 13 .3 12.2 13 .3 12.2 13	444

YARN BULK DENSITY =0.88

ARP OVER	•					i		BET	,		1	- 1	1		t	9	•
FACTOR [K1]	10	. 0	0.7	0.8	[CA.	1.0	1.1	.	1.3	-		, -	1.7	1.8	4.9	2.	•
000				L	00			00	00	.0					66		!
চ ল ও চ ক লে-লালালাল	00000					0. 0. 0. 22.5	0000	0. 0. 17.3 17.8	10. 122.3 17.6	0. 0. 22.1 18.7	6.00 200.0 118.5	24.0 19.8 17.9	0 24.8 119.5 118.6	28.9 21.0 19.4 18.7	200 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	222 220 400 140 160 160 160	
() (00000	00040		(4) 4) 4) 4) (6) 4 8 8 (6) 4 8 8	18. 14.7 14.7 13.2	11114 1419 1419 1419 1419	4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	44444 6677 74664	116.8 16.2 15.0 19.0	1 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	1144 1444 1669 1669	6.4. 6.4. 6.4. 6.4. 6.4.	9.71 7.71 8.71 8.71	1148	4 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
0 4 0 0 0 0 0 4 0 0 4	11 10 10 10 10 10 10 10 10 10 10 10 10 1	11.7 11.3 10.9	122. 112. 113. 113. 12. 13.	まるなるなるののもてるの	44444 88888 88488	4444 4444 24000	4444 4444 67444 6744	2000 2000 2000 2000 2000 2000 2000 200	21.22.23 27.22.23 27.23.23	22.55	16.6 16.6 16.6 16.5	17.0 17.0 17.0 16.9	4445	17.8 17.7 17.7 17.7	4 4 4 4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6	** ***********************************	
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		00000			###### ###############################	44444 888888 88888	4444 4444 88844	## 0 0 0 ## 0 0 0	###### ###############################	4444 4466 44000	111666 16666 16666	110000 10000 10000	44444 44444 94444	17.7 17.7 13.6 17.6	44444 6 6 6 6 6 0 0 0 0 0	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	
3 3 3 3 3		10.4 10.4	444	2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	13.8	444	15.0	25.51 15.51 15.51	16.0 16.0 16.0	16.5 16.5 16.5	16.9 16.9 16.9	17.3 17.3 17.3	17.6 17.6 17.6	444 86 80 00 00 00	8 8 8 8 8 8	



MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.89

7 A C T O R			7.0		6.0		=	BET.	4	ļ -		1.6		-	1.9	2.0	
000	0	50		-	1		00		90		•	ï			-	•	• •
© + Q 10 4 © + Q 10 4	00000	00000	00000	00000		20000	00000	22 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 10 17 17 17 19	17.50 0 17.50 0 17.50 0 17.50 0	00. 200.7 17.9	24.8 20.0 18.7	222.2 199.7 18.8	20 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	400 400 400 400 400 400 400 400	90400 90400 90400	
		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1436 123.4	0 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	44444 80444 800000	4 4 4 4 4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6	4 4 4 4 4 4 4 4 4 6 6 6 0 10 10 0	44444 50000 500000	4444 6666 6666 6666 6666 6666 6666 666	11111 7.0011 9.00.00	14444 1444 1647 1660 1660	7.7.4 7.7.4 7.7.4 7.6.7 8.6.6	18.0 17.7 17.7 17.6	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	4 4 4 4 4 6 6 6 6 6 6 7 6 8 8	
04000	11.5 10.7 10.0 9.8	4.00 6.00 6.00 6.00	81000 81000 81000	2002 2002 408 408 679	567987987987987989999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999<l< td=""><td>44444 80440</td><td>44444 98779</td><td>4556 4556 4556</td><td>またちょうちゅうちゅうちゅうちゅう</td><td>44444 44444 54444</td><td>8 8 8 8 7 8 7 8 8 7 8 8 8 8 8 8 8 8 8 8</td><td>27.74 27.74 21.10</td><td>アアファファララララ</td><td>11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1</td><td>8 8 8 8 8</td><td>311144 808088 808444</td><td></td></l<>	44444 80440	44444 98779	4556 4556 4556	またちょうちゅうちゅうちゅうちゅう	44444 44444 54444	8 8 8 8 7 8 7 8 8 7 8 8 8 8 8 8 8 8 8 8	27.74 27.74 21.10	アアファファララララ	11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	8 8 8 8 8	311144 808088 808444	
	00000 0000	10.7 10.6 10.6 10.6	44444 44444 74666	なまままり こここここ で ラム・4	**************************************	4 8 8 8 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9	4 4 4 4 4 0 0 0 0 0 0	2 4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	はままま 5 55 55 55 7 7 7 9 9	N N H H H 9 9 9 9 9 H H H H H	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	17.0 17.0 17.0 17.0	7777	80. 70. 80. 70. 70.		4 4 4 4 4	
	000 440	10.5	111 111 10 10 10	450	888 888 844 844	444 668 668	444 800	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	22 H H H H H H H H H H H H H H H H H H	1.61	2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	17.0 17.0 17.0	4.7.	17.7 17.7 17.7	 666 444	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.90

a wi			!			1		9E ₹									•
K 1 1 1 1 1 1 1 1 1		10		6 0	0.0	0	1.1	1.2	100	4.4	S	1.6	1.7	1.8	-	-	0
(a) (b)	00	-							00			-		ŀ		00)
O 국 (N M 주 다 전 대 대 대	00000	00000	60000	00000		26.7	000004	10000 1000 1000 1000	12000	1000 1400 1400 1000	00:48 	2000 4400 460 600 600 600 600	19.0 19.0 18.0 18.4	80 90 90 90 90 90 90 90 90 90 90 90 90 90	200444 24008 30000	80000 80000	4 60 60 41
でるである なられるな	00004 	000000 000000 000000	0000N 0000N 000	0 / 10 m	0 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	4 4 4 4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6	6 4 4 5 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6	5 4 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	44444 7.394 47.484	44444 77999 80009	90 40 6 90 40 6	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	8 4 4 4 6 6 7 7 7	4 0 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	4 4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	8 4 4 4 4 5 8 8 8 8 8 8	00110
	11001 1001 1001 1000 1000	1111 1111 1011 1011 1011 1011	8 8 8 8 8 8 8	20000	80 N 90 M 4	4444	24444 64444 0000V	ម្នាក់ ម្នាក់ មួយ	4 4 4 4 4 6 8 8 8 8 6 8 8 8	4 4 10 10 10 10 10 10 10 10 10 10 10 10 10	44444 6444 9444 9444 9444 9444	27.74 27.74 27.74 27.74	44444 44444 44444 44444	1444 1777 1999	4 4 4 4 4 8 8 6 6 6 8 5 6 6 6	(a) (c) (c) (c) (c) (c) (c) (c) (c) (c) (c	40 40 IO IO IO
2020 2020 2020 2020	00000 00000	10.7 10.7 10.7 10.6	87.999 	4 4 4 4 4 2 2 2 2 2 2 4 4 5 15 15 15	4 5 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	4444	4444 77.000	ままままま 50 50 50 50 50 50 60 60 60	ままままま 50 50 50 50 50 60 80 7 7 7	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	24444 2664 2777 2077		ななななななる。	2000 000 000	4 4 4 4 4 6 6 6 5 5 6 6 6 6 6	et et et et et et et et et et	
	444	10.6 10.5	11.6	200	133.2	200 200	444	15.2 15.2	15.7	16.2 16.2 15.2	16.7 16.7 16.7	17.1 17.1 17.1	17.5	17.00 17.00	2000	44 44 45 40 40	10 10 10



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF MARP COVER FACTOR AND BETA

YARN BULK BENSITY #0.91

PLAIN WEAVE FABRICS

HARP

OVER	 	1	1	í	1	1		861	1	(_			1	
K108	0.5	9.0	6.7	0		0	1.1	1.2	1.3	4.	4. S.	1.6	1.7	1.8	6.4	2	•
60 0	0			00		-	-	•	00						66		
		20000	00000			0. 0. 34.7	19999999999999999999999999999999999999	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0007 1000 1000 1000	00400	2000 2000 2000 2000 2000	27.0 20.5 19.0	23.2 20.1 19.1	40.40 199.9 198.7	40.00 40.00 40.00	20044 99049 99099	
80×00		13.7	0 0 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		011111 10044 88080	111111 7.0074 0.04.07	まままままで よらまっちょう	7 4 4 4 4 5 4 5 4 5 4 5 4 5 5 5 5 5 5 5	11111 6667 7000 7000	117.5 116.9 16.7 16.6	44444 7777 74040	148.0 17.7 17.6 17.8 17.8	800 K K K K K K K K K K K K K K K K K K	###### ##############################	ままままま 80 80 80 80 80 80 90 90 4	00000 00000 00000	
	111 110 110 110 100 100 100 100 100 100	 2	7.21 12.21 12.20 11.9	2001 2001 2001 2000 2001	44444 44444 46669	44444 04000	20044 4000	44444 5556 6556 6556 6556 6556 6556 655	11166	0 0 0 0 0 0 0 4 4 4	44444 66664 00000	4 m m m c	7.7.1 7.7.7 7.7.7 8.7.7	40000 00000	44556	1881 7.81 7.81 7.81 18.6	
28265	00000 00000	10.9 10.7 10.7	111 111 111 111 111 6	20000 20000 20000	44488 44488	++++0 ++++	34444 8777	4 4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6		4 m m m m	4 4 4 4 4 6 6 6 6 6 6 6 6 6 6	17.71 17.72 17.72 17.72	0.71 0.71 17.6 0.71	18.0 18.0 17.9	4 4 4 4 4 8 8 8 8 8 8 8 8 8 8	\$ \$ \$ \$ \$ \$ \$	
	000	10.6 10.6 10.6	11.6 11.6 11.6	122.3	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	444	14.7 14.7 14.7	15.3 15.3	17. 17. 10. 10.	16.44 16.44	16.8 16.8 16.7	17.2	17.6 17.6 17.6	17.9 17.9	4 4 4 80 80 80 10 10 10	118.6 118.6	

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.92

2 00	1		1	-			!	8E7						ĺ	•	ŧ	
X 1 1 1 1 1 1 1 1 1	0	9.0	0.7		0	2,0	1,1	t ye t	1.3	4	2.5	1.6	=	60		6	, ,
600	00				•		-	•			-		00		00		
		00000	66666	00000	00000	00000	00000	00 010 00 00 010 00 00 00 00	00000 0000 0000	2000 1000 1000 1000 1000	0 to 1 to	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	00000 00000 00000	222.2	22241 24000 26441	20011 410011 60000 60000	
写るアのマ id dist d d	00000	00 0 0 H H H H H H H H H H H H H H H H	20/45 20/45	00 N 4 N	0.444 0.6044 5.6057 W	4 4 5 4 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	111111 12055 14055	14444 76667 8668	111111 70000 40040	17.7 17.0 16.0 16.7	44444 44444 40000	40.744 70.74 70.70	40000 40000	4 + + + + + + + + + + + + + + + + + + +	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	
	2444	11111111111111111111111111111111111111	0.000 0.000 0.000	4 4 6 6 8	4 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	44444 60455	2 2 2 2 3 4 3 4 5 6 6 7 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	211111 22222 20222	44444 64466 64466	44444 44646 44666	40000	2444 2444 2444 84448	17.0 17.0 17.0 17.7	0 0 0 0 0 0 1 1 1 1 1 1 1	41444 80000 80444	1113 113 113 113 113 113 113 113 113 11	
00000 0000 0000	00000	11444 1000 1000 1000 1000 1000	44444 44444 98877	1222 1222 1222 1223 123 123 123 123 123	22444 225444	4444	4444	4 4 4 4 4	• 1444 • • • • • • • • • • • • • • • • • •	4 4 4 4 4	44444 66666 66666	2777 7777 88888	7.71 7.71 7.71 7.71	44400 66666	44444	1 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	
	000 000	10.7 10.7 10.6	11.7	4 4 4 6 6 6 6 6 6	444 444	+ + + + + + + + +	14.8	15.3 15.3	15.9	444	44.6 4.6 9.0 9.0 9.0	17. 17. 18. 18. 18.	17.7	1188.0	8 8 8 8	18.7	



MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.93

			0 C e				•	ш і	:	1				 t	•		•
X	0.5		7:	60		1.0	1.1	N		4 1	4.5	9	1.	ન ા	1.9	2.	
60 0	٠. ٥	66		00	00		0 5	00		00				00	000	00	
												0	0	0	80	4.	
										· •	6	0	4	2	•	-1 4	
								0	D	•	2		D	D	D	0	
44 a.q				0 0			21.0	27.2	21.3 18.6	18.4	18.5	19.4 18.6	19.4	19.0	19.5	19.	~ 4
					R .	•	-	7	7		•	œ	60	•	•	0	
					7	•	9	•		7		60	00	6	60	0	
		0	80	15.8	15.5	15.7	16.0	16.3	16.7	17.1	17.5	17.8	18.1	18.5	18.8	19.	
	0	~		*	4	50	5			\$				00	8	O.	
19	17.6	•	3	3	*	*	5	Ś	•	•		7		60	60	00	
	S	8	2	2	•	*	10	5	9	•		7		6	60	00	0
	+	-	2	PY)	2	4	5	5	•	9		7		œ	8	8	-
			2	3	M :	4	K)	Ŋ.	•	•		7	7	00	80	00	_
% €	4	11.3	12.2	20.0	13.7	4.4	15.0	15.6	16.1	16.6	17.0	17.5	17.3	2 6	2 8 8 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	- F	
	•	1	i	1	•			,			•		•	9		- 0	
	•	-	ò	2	m 1	*	+	5	•	ů,		~ 1	7	6	•	6	_
	•			o o		•	4 .	v :	ė	•						3D 0	
	•		÷.	·	·	•	* •	. H		•					D Q	0 4	_
0 0	0.7	10.8	11.00	12.7	13.5	14.2	14.8	4 0 4	16.0	16.5	16.9	17.4	17.8	18.1	10.01	1 9	0 60
	٠ • •		11.8	12.7	M	14.2	44.4		16.0	16.5	16.9	47.4	17.8	18.1	44 4 80 8 80 8	60 a	∞ α
326	• •		• •	• •	• •		•	, ru	• •	0				• • • • • • • • • • • • • • • • • • •	• • •	တေ	

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =0.94

0.41	(1	!			1	1	1 00 0	1		, 1	1 1 1			•	0 8 0	
* ~	0.5	9	0.7	E .	0.0	0	1.1	1.2	1 of 1	भी । को	.5	1.6	1.7	1.8	4	2	
60 0	• •	00.	• •					00.	0 0				000		00	000	
	00000		00000		00000	00000	0. 0. 21.7	00000 9 H	2000 484 696	422 423 646	100 100 100 100 100 100 100 100 100 100	6	0.440 1.00 1.00 1.00 1.00 1.00 1.00 1.00	190.50	222 222 200 200 200 200 200 200 200 200	これ ひかり	
	2000	0000M	444 66048 400	04944 04944	80 4 4 4 4 8 4 4 6 16 16 16 16 16 16 16 16 16 16 16 16 1	24444 2488 200 200 200 200 200 200 200 200 200 2	4 4 4 4 4 5 5 5 5 6 5 6 5 6 5 6 5 6 5 6	70000 70000 70000	111111 10111 10111	24444 27774 28.000	40045 40045 40045	188.14 17.14 17.74	44444 88888 64044	9 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	20000 2000 2000 2000 2000 2000 2000 20	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
		4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	2000 2000 2000 2000 2000 3000 4000	4 4 4 4 4 6 4 6 4 6	44335	44444 87.004	4 2 2 3 4 4 4 4 4 4 7 2 4 7 2 4 4 4 4 4 4 4 4 4	80 00 00 00 00 00 00 00 00 00 00 00 00 0	4 12 12 14 14 14 14 14 14 14 14 14 14 14 14 14	116.3 116.7 15.7	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	7 7 7 7 7 7 7 7 7 7 7 9 9 8 8 8 8 8 8 8	118.0 118.0 17.9	4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	2 4 4 4 4 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5	4 4 4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6	
2222 2020 2000			40000 0000	00000 00000 0000 0000 0000 0000	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	4444 48888	2 2 2 2 4 4 4 5 5 5 5 6 5 6 6 6 6 6 6 6 6 6 6 6	មានក្នុង ស្សសសស ភ្ភសស្ស	 	4444 6966 6966	**************************************	22444 77777 88888	47.9 47.9 47.9 6.7	4 4 4 4 4 8 8 8 8 8 8 6 6 6	4 4 4 4 4 8 8 8 8 8 6 6 6 6	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	
	V 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	10.8 10.8	4 4 4 4 6 8 6 6 6 6	12.7	4 4 4 5 5 5 6 6 6	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	444	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	16.6 16.6	17.0	17.5	17.9 17.9 17.9	4 4 8 4 4 8 4 4 6 4 6 4 6 4 6 4 6 4 6 4	4 4 4 6 6 6 6 6 6	4 4 4 8 8 4 9 9 9 9 9 9 9 9 9 9 9 9 9 9	



MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #1.00

2 4 4		1	!					8 E	!	(()	(1 1	0 9 0		1 0 1
K 1	0.5	1	~	8.		1.0	•				· + ·	1.6	+	-1	4.9	~ 1	0
80 0	-		Ì							• • •	00		60	00	6.6	00	
ਨ ਚ ਨਾਲ ਵ ਚ ਦ ਦ ਦ ਦ			00000				N 3000	,	200. 200. 200.	00000	127.00 127.55 6.125	1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	200 200 200 200 200 200 200 200 200 200	2000 2000 2000 2000 2000	2000 2000 2000 2000 2000	20. 20. 20. 20.	どりょとい
15 4 5 5 5 5 10 4 7 8 4		0.00.00.00.00.00.00.00.00.00.00.00.00.0				22.9 18.1 16.7 15.0	91 91 91 91 91 91 91	1148 1147 1166 1166 1166 1166 1166 1166 1166	118 17 17 17 18 18 18	118.7 17.9 17.7 17.7	20000 2000 2000 2000 2000	44444 98888 48645	0000 0000 0000 0000 0000	9 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	4 4 4 4 4	44469	
	201111 201110 201110	13.6 12.7 112.7 11.9	44444 88066 68066	4 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	4 4 4 4 4 6 6 6 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	222224 202524 40409	11111111111111111111111111111111111111	2000 2000 2000 2000 2000 2000	11669	46.64	11111111111111111111111111111111111111	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	44444 8888 6088 8088	0.000 0.000 0.000	9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	00000	0000m
		4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	1. 4 4 4 4 6 0. 0. 0. 0. 0. 0. 4 4 10 10	******	4444	\$ \$ \$ \$ \$ \$ \$	ង	44400 5000 4444	111111 6066 6066	21414	4777	4 4 4 4 4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6	444 800000 80000	4 4 4 4 4 8 8 8 8 8 8 8 8 8 8	20000 00000 00000	9 9 9 9 9 9 9 9 9 9	ស
	10.0	11.2 11.2 11.1	12.2 12.2	+++ +++ +++	44.0	14.7 14.7 14.7	8 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	16.0 16.0	16.6 16.6 6.6	17.1 17.1 17.1	17.6 17.6 17.6	48 48 6 6 6 6	4 4 4	80 H H H 80 80 80	19.5	949	וח וח וח

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =1.36

9674 977 9874 9874 9877 9877 9877 9877 977 9																			
0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	t tz	1	,	I ê	1 1 1	 		1	œ	4									
0. 0. 0. 0. 0. 0. 0. 0. 0. 25.0 22.9 22.4 22.2 22.5 22.5 22.7 23.0 23.2 23.0 0.0 0. 0. 0. 38.4 23.1 21.6 21.3 21.3 21.5 21.8 22.1 22.4 22.7 23.0 23.2 23.0 0.0 0. 0. 36.0 21.7 20.5 20.3 20.5 20.7 21.6 21.3 21.3 21.5 21.8 22.1 22.4 22.7 23.0 23.2 20.0 0. 0. 0. 36.0 21.7 20.5 20.3 20.5 20.7 21.6 21.8 22.1 22.4 22.7 23.0 0. 0. 0. 19.6 18.4 19.4 19.6 20.0 20.4 20.8 21.2 21.6 22.0 22.4 22.7 23.0 0. 19.6 18.4 19.4 19.6 21.0 20.4 20.8 21.2 21.6 22.0 22.4 22.7 23.0 0. 19.2 17.3 17.4 17.8 18.7 18.9 19.9 20.4 20.9 21.4 21.8 22.2 22.6 22.2 15.4 15.3 16.3 16.4 17.1 17.8 18.5 19.1 19.7 20.2 20.8 21.3 21.7 22.1 22.5 22.1 15.4 17.1 17.8 18.5 19.1 19.7 20.2 20.8 21.3 21.7 22.1 22.5 22.1 12.1 16.4 17.1 17.8 18.5 19.5 19.6 20.1 20.7 21.2 21.6 22.0 22.4 22.1 12.8 14.9 15.9 16.8 17.7 18.4 19.0 19.6 20.1 20.7 21.2 21.6 22.0 22.4 22.1 12.8 14.9 15.9 16.8 17.5 18.9 19.5 20.1 20.5 21.1 21.5 22.0 22.4 22.1 12.8 14.9 15.9 16.8 17.5 18.1 18.8 19.4 20.0 20.5 21.1 21.5 22.0 22.4 22.1 22.1 13.4 14.5 15.5 16.5 17.3 18.1 18.8 19.4 20.0 20.6 21.1 21.5 22.0 22.4 22.1 18.8 14.4 15.5 16.4 17.3 18.1 18.8 19.4 20.0 20.5 21.0 21.5 21.9 22.8 22.0 22.4 22.1 18.8 14.4 15.5 16.4 17.2 18.0 18.7 19.4 20.0 20.5 21.0 21.5 21.9 22.8 22.7 22.0 22.4 22.1 18.8 14.8 15.8 14.8 15.8 14.8 15.8 14.8 15.8 14.8 15.8 14.8 15.8 14.8 15.8 14.8 15.8 14.8 15.8 14.8 15.8 14.8 15.8 14.8 15.8 14.8 15.8 18.0 18.7 19.4 20.0 20.5 21.0 21.5 21.9 22.8 22.7 22.0 22.4 22.7 18.8 14.8 15.8 14.8 15.8 14.8 15.8 14.8 15.8 14.8 16.8 18.7 19.4 20.0 20.5 21.0 21.5 21.9 22.8 22.7 22.0 22.4 22.7 18.8 14.8 15.8 14.8 18.8 19.8 20.5 21.0 21.5 21.9 22.8 22.7 22.9 22.8 22.7 22.0 22.8 22.9 22.8 22.9 22.8 22.9 22.8 22.9 22.9	1	U.5 n	9 -	7	60 :	0 !	+	+		2 1.	3 1	4	. 7	i +-i	-	7		-	2
0. 0. 0. 0. 38.4 23.1 21.6 21.3 21.5 21.8 22.1 22.5 22.7 23.0 23.2 23.0 23.0 0. 0. 0. 0. 36.0 21.7 20.5 20.5 20.7 21.3 21.5 21.8 22.1 22.4 22.7 23.0 23.0 0. 0. 0. 0. 36.0 21.7 20.5 20.5 20.7 21.3 21.5 21.8 22.1 22.4 22.7 23.0 23.0 0. 0. 0. 19.6 18.5 19.4 19.4 19.6 20.0 20.4 20.8 21.2 21.6 22.0 22.4 22.7 23.0 0. 19.2 17.3 17.4 18.0 18.5 19.9 19.4 20.4 20.8 21.5 21.9 22.3 22.6 22.0 20.0 16.3 16.3 16.4 17.4 18.0 18.6 19.2 19.9 20.4 20.9 21.4 21.8 22.2 22.6 22.0 20.0 16.3 16.3 16.4 17.4 11.7 17.8 18.5 19.9 19.9 20.4 20.8 21.2 21.7 22.1 22.5 22.0 22.4 22.1 22.1 15.7 16.4 17.1 17.8 18.5 19.9 19.9 20.4 20.8 21.2 21.7 22.1 22.5 22.0 22.4 22.0 14.5 15.3 16.4 17.4 17.8 18.5 19.9 19.6 20.2 20.8 21.2 21.7 22.1 22.5 22.0 22.4 22.0 14.5 15.0 15.9 16.8 17.4 19.9 19.6 20.2 20.8 21.2 21.6 22.0 22.4 22.0 2.8 13.8 14.9 15.0 15.9 16.8 17.5 18.9 19.6 20.1 20.7 21.2 21.6 22.0 22.4 22.0 2.8 13.8 14.9 15.0 15.7 17.5 18.1 18.8 19.5 20.1 20.6 21.1 21.6 22.0 22.4 22.0 2.7 12.5 12.5 12.5 12.5 12.5 12.5 12.5 12.5					0		0	6	27	9 24.	6 23	.6 2		- m	23		1 .	1 10	1 6
0. n. n. 36.0 21.7 20.5 21.3 21.5 21.5 21.8 22.1 22.4 22.7 23.0 23.0 0. n. n. 36.0 21.7 20.5 20.3 20.5 20.7 21.1 21.4 21.8 22.2 22.5 22.6 23.0 0. n. 19.6 18.4 18.4 18.4 19.6 20.0 20.4 20.8 21.2 21.6 22.0 22.4 22.7 23.0 10. 19.6 18.4 18.4 18.4 18.5 19.6 21.0 20.4 20.9 21.6 21.6 21.9 22.3 22.6 22.0 10.0 16.3 16.8 17.4 18.0 18.6 19.2 19.6 20.4 20.9 21.4 21.8 22.2 22.6 22.0 10.0 16.3 16.8 17.4 18.0 18.6 19.2 19.8 20.3 20.8 21.3 21.7 22.1 22.5 22.0 15.4 15.1 15.7 16.4 17.1 17.8 18.5 19.1 19.7 20.2 20.8 21.2 21.7 22.1 22.5 22.1 13.0 14.5 15.3 16.1 16.9 17.7 18.4 19.0 19.6 20.2 20.7 21.2 21.6 21.7 22.1 22.5 22.0 22.4 22.0 18.8 14.9 15.8 14.9 15.8 14.0 17.5 18.9 19.6 20.1 20.7 21.2 21.6 22.0 22.4 22.0 12.8 13.8 14.9 15.8 14.7 15.7 16.7 17.4 18.1 18.8 19.5 20.1 20.6 21.1 21.6 22.0 22.4 22.0 13.8 14.9 15.8 14.0 15.6 16.5 17.3 18.1 18.8 19.4 20.0 20.6 21.1 21.5 22.0 22.4 22.0 13.3 13.5 14.6 15.5 16.4 17.7 18.0 18.7 19.4 20.0 20.5 21.0 21.5 22.0 22.4 22.0 13.3 14.4 15.5 16.4 17.7 18.0 18.7 19.4 20.0 20.5 21.0 21.5 21.9 22.4 22.7 11.9 13.1 14.3 15.4 16.3 17.2 18.0 18.7 19.4 20.0 20.5 21.0 21.5 21.9 22.4 22.7 11.7 13.1 14.3 15.4 16.3 17.2 18.0 18.7 19.4 20.0 20.5 21.0 21.5 21.9 22.4 22.7 11.7 13.1 14.3 15.4 16.3 17.2 18.0 18.7 19.4 20.0 20.5 21.0 21.5 21.9 22.3 22.7 11.7 13.1 14.3 15.3 16.3 17.2 18.0 18.7 19.4 20.0 20.5 21.0 21.5 21.9 22.3 22.7 11.7 13.0 14.2 15.3 16.3 17.1 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 11.6 13.0 14.2 15.3 16.3 17.1 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 11.6 13.0 14.2 15.3 16.7 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 11.6 12.0 14.2 15.3 16.7 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.0 21.5 21.9 22.3 22.7 11.6 13.0 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.0 21.5 21.9 22.3 22.7 11.6 13.0 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.0 21.5 21.9 22.3 22.7 11.6 13.0 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.0 21.5 21.0 21.5 21.0 21.5 21.0 21.5 21.0 21.5 21.0 21.5 21.0 21.5 21.0 21.5 21.0 21.5 21.0 21.5 21.0 21.5 21.0 21.					· ·	. ac	200	25.	0 22	25.	4 22	5	•	à	22	7 2		• •	S W
0. 0. 0. 20.5 19.4 19.4 19.6 20.0 20.4 20.8 21.2 21.6 22.0 22.4 22.7 23. 0. 19.6 18.4 18.4 18.7 19.2 19.6 20.1 20.6 21.0 21.5 21.9 22.3 22.6 25. 10. 19.2 17.3 17.4 17.8 18.3 18.9 19.4 20.4 20.6 20.9 21.4 21.8 22.2 22.6 22. 15.4 15.1 15.7 16.4 17.1 17.8 18.5 19.1 19.7 20.2 20.8 21.3 21.7 22.1 22.5 22.1 15.4 15.1 15.7 16.4 17.1 17.8 18.5 19.1 19.7 20.2 20.8 21.2 21.7 22.1 22.5 22.1 15.5 14.5 15.3 16.1 16.9 17.7 18.4 19.0 19.6 20.2 20.7 21.2 21.7 22.1 22.5 22.1 15.8 14.5 15.3 16.1 16.9 17.7 18.4 19.0 19.6 20.2 20.7 21.2 21.7 22.1 22.5 22.1 15.8 14.5 15.5 16.1 16.9 17.7 18.4 19.9 19.5 20.1 20.5 21.1 21.6 22.0 22.4 22.1 15.8 13.8 14.9 15.8 16.7 17.5 18.2 18.9 19.5 20.1 20.6 21.1 21.6 22.0 22.4 22.1 2.1 13.4 14.5 15.7 16.4 17.4 18.1 18.8 19.4 20.0 20.6 21.1 21.6 22.0 22.4 22.1 2.1 13.4 14.5 15.5 16.5 17.3 18.1 18.8 19.4 20.0 20.6 21.1 21.5 22.0 22.4 22.1 2.1 13.4 14.5 15.5 16.4 17.2 18.0 18.7 19.4 20.0 20.5 21.0 21.5 21.9 22.4 22.7 1.7 13.1 14.3 15.4 16.3 17.2 18.0 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 1.7 13.1 14.3 15.3 16.3 17.2 18.0 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 1.6 13.0 14.2 15.3 16.2 17.1 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 1.6 13.0 14.2 15.3 16.2 17.1 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 1.6 12.0 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 1.6 12.0 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 1.6 12.9 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 1.6 12.9 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 1.6 12.9 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 1.6 12.9 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 1.8 13.0 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 1.8 18.0 18.0 18.0 18.3 19.3 19.9 21.0 21.5 21.0 21.5 21.9 22.3 22.7 1.8 18.0 18.0 18.0 18.0 18.3 19.9 21.5 21.0 21.5 21.0 22.3 22.3 22.3 22.3 22.3 22.3 22.3 22					•		20.	20.	3 20	200	212	ν. 	•	N	200	00	•		23
0. 0. 10. 21.0 19.4 19.5 20.0 20.4 20.8 21.2 21.6 22.0 22.4 22.7 23.0 10.2 17.3 17.4 17.4 18.7 19.2 19.6 20.1 20.6 21.0 21.5 21.9 22.3 22.6 23.0 10.4 17.3 17.4 17.4 18.7 18.9 18.9 20.4 20.9 21.3 21.7 22.1 22.5 22.6 22.0 16.3 16.3 16.4 17.4 18.0 18.6 19.2 19.8 20.3 20.8 21.3 21.7 22.1 22.5 22.1 22.5 22.1 15.4 15.1 15.7 16.4 17.1 17.8 18.5 19.1 19.7 20.2 20.8 21.2 21.7 22.1 22.5 22.1 22.5 16.3 16.3 16.9 17.7 18.4 19.0 19.6 20.2 20.7 21.2 21.7 22.1 22.5 22.1 22.8 14.1 15.0 15.9 16.8 17.6 18.3 18.9 19.6 20.1 20.7 21.2 21.6 22.0 22.4 22.1 22.8 13.6 14.9 15.8 16.7 17.5 18.2 18.9 19.5 20.1 20.6 21.1 21.6 22.0 22.4 22.1 22.5 13.6 14.9 15.6 16.5 17.3 18.1 18.8 19.4 20.0 20.6 21.1 21.6 22.0 22.4 22.1 22.3 13.5 14.4 15.5 16.5 17.3 18.1 18.8 19.4 20.0 20.6 21.1 21.5 22.0 22.4 22.4 22.1 13.3 14.4 15.4 16.5 17.3 18.1 18.8 19.4 20.0 20.5 21.0 21.5 21.0 22.6 22.4 22.1 13.3 14.4 15.4 16.5 17.3 18.1 18.8 19.4 20.0 20.5 21.0 21.5 21.9 22.4 22.7 17.8 13.1 14.3 15.4 16.3 17.2 18.0 18.7 19.4 20.0 20.5 21.0 21.5 21.9 22.4 22.7 17.1 13.1 14.3 15.4 16.3 17.2 18.0 18.7 19.4 20.0 20.5 21.0 21.5 21.9 22.4 22.7 11.7 13.1 14.3 15.3 16.3 17.2 18.0 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 11.4 13.5 16.3 17.1 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 11.4 13.0 14.2 15.3 16.3 17.1 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 11.4 13.0 14.2 15.3 16.3 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 11.4 13.0 14.2 15.3 16.3 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 11.4 13.0 14.2 15.3 16.3 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 11.4 13.0 14.2 15.3 16.3 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 11.4 13.0 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 11.4 11.5 11.5 11.5 11.5 11.5 11.5 11.5		C.			•	•) 	1 J	J		• -i	2	N	•	·	23
0. 19.2 17.3 17.4 17.8 18.3 19.6 20.1 20.6 21.0 21.5 21.9 22.3 22.6 23.5 20.9 16.3 16.3 16.3 16.4 17.8 18.3 18.4 19.9 19.4 19.9 20.4 20.9 21.4 21.8 22.2 22.6 22.5 22.6 22.5 15.3 16.3 16.4 17.1 17.8 18.5 19.1 19.7 20.2 20.8 21.2 21.7 22.1 22.5 22.6 22.5 13.0 16.3 16.8 17.1 17.8 18.5 19.1 19.7 20.2 20.8 21.2 21.7 22.1 22.5 22.1 22.5 22.1 23.5 14.1 15.0 15.9 16.4 17.1 18.5 19.0 19.6 20.1 20.7 21.2 21.6 22.1 22.5 22.1 22.5 13.7 14.1 15.0 15.9 16.4 17.5 18.9 19.6 20.1 20.6 21.1 21.6 22.0 22.4 22.1 22.5 13.6 14.7 15.7 16.6 17.4 18.1 18.6 19.5 20.1 20.6 21.1 21.6 22.0 22.4 22.1 2.3 13.5 14.6 15.6 16.5 17.3 18.1 18.8 19.4 20.0 20.6 21.1 21.5 22.0 22.4 22.1 2.1 13.4 14.5 15.5 16.5 17.3 18.1 18.8 19.4 20.0 20.6 21.1 21.5 22.0 22.4 22.1 2.0 13.2 14.4 15.5 16.4 17.7 18.0 18.7 19.4 20.0 20.5 21.0 21.5 21.0 21.5 22.0 22.4 22.7 13.1 14.3 15.3 16.3 17.2 18.0 18.7 19.4 20.0 20.5 21.0 21.5 21.9 22.4 22.7 17.3 18.0 18.7 19.4 20.0 20.5 21.0 21.5 21.9 22.4 22.7 17.3 18.0 18.7 19.4 20.0 20.5 21.0 21.5 21.9 22.4 22.7 17.3 16.3 17.2 18.0 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.4 22.7 17.3 16.3 17.2 18.0 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 17.3 18.3 17.2 18.0 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 17.3 18.3 17.2 18.0 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 17.3 18.1 18.5 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 17.3 18.7 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 17.5 18.0 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 17.5 17.7 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 17.5 17.7 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 17.5 17.7 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 17.5 17.7 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 17.5 17.7 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.0 21.5 21.9 22.3 22.7 17.5 17.7 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.0 21.5 21.9 22.3 22.7 17.5 17.5 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.0 21.5 21.9 22.3 22.7 17.5 17.5 17.5 18.7 19.3 19.9 20.5 21.0 21.5 21.0 21.5 21.9 22.3 22.7 22.0 22.0 22.0 22.0 22.0 22.0 22.0			•		• a	> a	6 9	6	20.	0 20.	20	8 2	•	7	2	0 2	4	0	1
20.9 16.3 16.3 16.8 17.4 180 186 19.2 19.8 20.4 20.9 21.4 21.8 22.2 22.6 22. 15.4 15.1 15.7 16.4 17.1 17.8 186 19.2 19.8 20.3 20.8 21.3 21.7 22.1 22.5 22. 13.9 14.5 15.3 16.4 17.1 17.8 18.6 19.2 19.8 20.3 20.8 21.2 21.7 22.1 22.5 22. 13.5 14.1 15.0 15.9 16.8 17.6 18.3 18.9 19.6 20.1 20.7 21.2 21.6 22.1 22.5 22. 12.8 13.8 14.9 15.8 16.7 17.5 18.2 18.9 19.6 20.1 20.7 21.2 21.6 22.0 22.4 22. 12.8 13.6 14.7 15.7 16.4 17.5 18.2 18.9 19.5 20.1 20.6 21.1 21.6 22.0 22.4 22.1 2.3 13.5 14.6 15.6 17.3 18.1 18.6 19.5 20.1 20.6 21.1 21.6 22.0 22.4 22.1 2.3 13.5 14.6 15.5 16.5 17.3 18.1 18.8 19.4 20.0 20.6 21.1 21.5 22.0 22.4 22.6 21.0 13.3 14.4 15.5 16.5 17.3 18.1 18.8 19.4 20.0 20.5 21.0 21.5 22.0 22.4 22.6 19.9 13.3 14.4 15.5 16.5 17.3 18.0 18.7 19.4 20.0 20.5 21.0 21.5 22.0 22.4 22.7 17.0 13.3 14.4 15.4 16.4 17.7 18.0 18.7 19.4 20.0 20.5 21.0 21.5 21.9 22.4 22.7 17.1 14.3 15.4 16.3 17.2 18.0 18.7 19.4 20.0 20.5 21.0 21.5 21.9 22.4 22.7 17.1 13.1 14.3 15.4 16.3 17.2 18.0 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 17.1 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 17.1 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 17.4 13.0 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 11.6 13.0 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 11.6 13.0 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 11.6 13.0 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 11.6 12.9 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 11.6 12.9 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 11.6 17.9 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 11.6 17.9 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 11.6 17.9 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 11.6 17.9 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 11.6 17.9 17.9 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.0 21.5 21.9 22.3 22.7 11.6 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.0 21.5 21.9 22.3 22.7 11.6 17.9 18.6 19.3 19.9 20.5 21.0 2		. 19	7 7	m		0 1	0		61,	6 20.	20	9	•	1.	21	2	3	5) P
15.4 15.1 15.7 16.4 17.1 17.8 18.5 19.1 19.7 20.2 20.8 21.3 21.7 22.1 22.5 22.2 23.9 14.5 15.3 16.1 16.9 17.7 18.4 19.0 19.6 20.2 20.8 21.2 21.5 22.1 22.5 22.1 23.9 14.5 15.3 16.1 16.9 17.7 18.4 19.0 19.6 20.1 20.7 21.2 21.6 22.0 22.4 22.1 23.8 14.9 15.8 14.9 15.8 14.9 15.8 16.7 17.5 18.2 18.9 19.6 20.1 20.7 21.2 21.6 22.0 22.4 22.1 2.5 13.6 14.7 15.7 16.6 17.4 18.1 18.6 19.5 20.1 20.6 21.1 21.6 22.0 22.4 22.1 2.3 13.5 14.6 15.6 16.5 17.3 18.1 18.8 19.4 20.0 20.6 21.1 21.5 22.0 22.4 22.2 2.1 13.4 14.5 15.5 16.5 17.3 18.1 18.8 19.4 20.0 20.6 21.1 21.5 22.0 22.4 22.2 2.0 13.3 14.4 15.5 16.4 17.3 18.1 18.8 19.4 20.0 20.5 21.0 21.5 22.0 22.4 22.7 19.1 13.2 14.4 15.4 16.3 17.2 18.0 18.7 19.4 20.0 20.5 21.0 21.5 21.9 22.4 22.7 17.7 13.1 14.3 15.4 16.3 17.2 18.0 18.7 19.4 20.0 20.5 21.0 21.5 21.9 22.4 22.7 17.7 13.1 14.3 15.4 16.3 17.2 18.0 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.4 22.7 17.7 13.1 14.3 15.4 16.3 17.2 18.0 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 17.7 13.1 14.2 15.3 16.3 17.1 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 17.4 13.0 14.2 15.3 16.3 17.1 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 17.4 13.0 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 17.5 17.5 17.5 17.5 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 17.5 17.5 17.5 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 22.7 22.7 22.7 22.7 22.7 22.7		0.9 16	3	٣.			1 8	. d	, ,		20	4 t	•	÷	21	8 2		2	N
13.9 14.5 15.3 16.1 16.9 17.7 18.4 19.0 19.6 20.2 20.7 21.2 21.6 22.1 22.5 22. 12.8 13.8 14.9 15.0 15.9 16.8 17.5 18.3 18.9 19.5 20.1 20.7 21.2 21.6 22.0 22.4 22.1 22.8 13.8 14.9 15.8 14.9 15.8 14.9 15.8 16.7 17.5 18.2 18.9 19.5 20.1 20.6 21.1 21.6 22.0 22.4 22.1 22.5 13.6 14.7 15.7 16.6 17.3 18.1 18.8 19.4 20.0 20.6 21.1 21.5 22.0 22.4 22.8 22.3 13.5 14.6 15.6 16.5 17.3 18.1 18.8 19.4 20.0 20.6 21.1 21.5 22.0 22.4 22.8 2.0 13.3 14.4 15.5 16.4 17.3 18.0 18.7 19.4 20.0 20.5 21.0 21.5 22.0 22.4 22.8 11.9 13.3 14.4 15.5 16.4 17.3 18.0 18.7 19.4 20.0 20.5 21.0 21.5 22.0 22.4 22.7 1.9 13.2 14.4 15.4 16.3 17.2 18.0 18.7 19.4 20.0 20.5 21.0 21.5 21.9 22.4 22.7 17.7 13.1 14.3 15.4 16.3 17.2 18.0 18.7 19.4 20.0 20.5 21.0 21.5 21.9 22.4 22.7 17.7 13.1 14.3 15.4 16.3 17.2 18.0 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 17.7 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 17.1 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 11.4 13.0 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 11.4 13.0 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 22.7 22.7 22.7 22.7 22.7 22.7	77	5.4 15	1 1	. 7	9	7	17.	69	19.	1 19.	202	2 C	• •		27	200	٠.٠	N C	CUC
13.2 14.1 15.0 15.0 16.8 17.6 18.4 19.0 19.6 20.2 20.7 21.2 21.6 22.0 22.4 22.2 13.8 14.9 15.0 16.8 17.6 18.3 18.9 19.5 20.1 20.7 21.2 21.6 22.0 22.4 22.2 2.3 13.8 14.9 15.8 16.5 17.4 18.1 18.6 19.5 20.1 20.6 21.1 21.6 22.0 22.4 22.2 22.3 13.5 14.6 15.6 16.5 17.3 18.1 18.8 19.4 20.0 20.6 21.1 21.5 22.0 22.4 22.2 22.3 13.5 14.4 15.5 16.4 17.3 18.1 18.8 19.4 20.0 20.6 21.1 21.5 22.0 22.4 22.1 2.0 13.3 14.4 15.5 16.4 17.3 18.1 18.8 19.4 20.0 20.5 21.0 21.5 22.0 22.4 22.1 1.9 13.2 14.4 15.5 16.4 17.3 18.0 18.7 19.4 20.0 20.5 21.0 21.5 22.0 22.4 22.1 1.9 13.1 14.3 15.4 16.3 17.2 18.0 18.7 19.4 20.0 20.5 21.0 21.5 21.9 22.4 22.1 1.7 13.1 14.3 15.4 16.3 17.2 18.0 18.7 19.4 20.0 20.5 21.0 21.5 21.9 22.4 22.1 1.7 13.1 14.3 15.3 16.3 17.2 18.0 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.3 22.3 16.3 17.2 18.0 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.3 22.3 16.3 17.1 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.3 22.3 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.3 22.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.3 22.3 22.3 22.3 22.3 22.3 22	•	3.9.14	ر ر	M	4	×	r	,				1	•	•	4	V	7.	•	N
2.8 13.8 14.9 15.8 16.7 17.5 18.2 18.9 19.6 20.1 20.7 21.2 21.6 22.0 22.4 22.2 13.6 14.7 15.7 16.6 17.4 18.1 18.6 19.5 20.1 20.6 21.1 21.6 22.0 22.4 22.2 13.5 14.6 15.6 16.5 17.3 18.1 18.8 19.4 20.0 20.6 21.1 21.5 22.0 22.4 22.2 13.5 14.6 15.5 16.5 17.3 18.1 18.8 19.4 20.0 20.6 21.1 21.5 22.0 22.4 22.1 2.1 3.3 14.4 15.5 16.4 17.3 18.0 18.7 19.4 20.0 20.5 21.0 21.5 22.0 22.4 22.1 18.3 14.4 15.5 16.4 17.3 18.0 18.7 19.4 20.0 20.5 21.0 21.5 22.0 22.4 22.1 18.3 14.4 15.5 16.4 17.3 18.0 18.7 19.4 20.0 20.5 21.0 21.5 22.0 22.4 22.1 17.3 18.0 18.7 19.4 20.0 20.5 21.0 21.5 21.9 22.4 22.1 17.3 18.0 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.4 22.1 17.3 15.3 17.2 18.0 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.3 22.3 22.3 22.3 22.3 22.3 22	· 🗝	3.2 14	, 4-) c	0 r			9	6	19.	20	2	۲.	+	+	C	4	2	0
2.5 13.6 14.7 15.7 16.6 17.4 18.1 18.6 19.5 20.1 20.6 21.1 21.6 22.0 22.4 22.2.3 13.5 14.6 15.6 16.5 17.3 18.1 18.6 19.5 20.1 20.6 21.1 21.6 22.0 22.4 22.2.3 13.5 14.6 15.6 16.5 17.3 18.1 18.8 19.4 20.0 20.6 21.1 21.5 22.0 22.4 22.2.0 13.3 14.4 15.5 16.4 17.3 18.1 18.8 19.4 20.0 20.6 21.1 21.5 22.0 22.4 22.1 19.1 14.5 15.5 16.4 17.3 18.0 18.7 19.4 20.0 20.5 21.0 21.5 22.0 22.4 22.1 19.1 14.3 15.4 16.3 17.2 18.0 18.7 19.4 20.0 20.5 21.0 21.5 22.0 22.4 22.1 17.1 14.3 15.4 16.3 17.2 18.0 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.4 22.1 17.1 17.2 18.0 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.1 17.1 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.1 17.5 13.0 14.2 15.3 16.3 17.1 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 17.5 13.0 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 17.5 13.0 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 17.5 17.5 17.5 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 17.5 17.5 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 17.5 17.5 17.5 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 17.5 17.5 17.5 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 17.5 17.5 17.5 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 17.5 17.5 17.5 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 17.5 17.5 17.5 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 17.5 17.5 17.5 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 22.7 22.7 22.7 22.7 22.7 22.7		2.8 13	4 00	0	· u			13	18.	19.	20	~ 1	.7	+		N			
2.3 13.5 14.6 15.6 16.5 17.3 18.1 18.8 19.5 20.1 20.6 21.1 21.6 22.0 22.4 22.2 22.1 13.4 14.5 15.5 16.5 17.3 18.1 18.8 19.4 20.0 20.6 21.1 21.5 22.0 22.4 22.2 22.0 13.3 14.4 15.5 16.4 17.3 18.0 18.7 19.4 20.0 20.5 21.0 21.5 22.0 22.4 22.1 19.9 13.2 14.4 15.5 16.4 17.3 18.0 18.7 19.4 20.0 20.5 21.0 21.5 22.0 22.4 22.1 19.9 13.2 14.4 15.4 16.4 17.2 18.0 18.7 19.4 20.0 20.5 21.0 21.5 22.0 22.4 22.1 17.3 15.4 16.3 17.2 18.0 18.7 19.4 20.0 20.5 21.0 21.5 21.9 22.4 22.1 17.7 13.1 14.3 15.4 16.3 17.2 18.0 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.3 15.4 15.3 16.3 17.2 18.0 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.3 16.5 13.0 14.2 15.3 16.3 17.1 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 11.6 13.0 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 11.6 13.0 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 11.6 12.9 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 11.6 12.9 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 11.6 12.9 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 11.6 12.9 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 11.6 12.9 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 11.6 12.9 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 11.6 12.9 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 11.6 12.9 12.5 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 11.6 12.9 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 11.6 12.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 11.6 12.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 11.6 12.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.7 11.6 12.9 12.9 12.9 12.9 12.9 12.9 12.9 12.9	-	2.5 13	4 1 4	. ~	, 10	•		E 0	æ ;	19.	20	1 2	9.	1.	+	N	0	2	· ·
2.1 13.4 14.5 15.5 16.5 17.3 18.1 18.8 19.4 20.0 20.6 21.1 21.5 22.0 22.4 22.0 13.3 14.4 15.5 16.4 17.3 18.0 18.7 19.4 20.0 20.5 21.0 21.5 22.0 22.4 22.1 19. 13.2 14.4 15.5 16.4 17.3 18.0 18.7 19.4 20.0 20.5 21.0 21.5 22.0 22.4 22.1 18.1 14.3 15.4 16.3 17.2 18.0 18.7 19.4 20.0 20.5 21.0 21.5 22.0 22.4 22.1 17.1 13.1 14.3 15.4 16.3 17.2 18.0 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.4 22.1 17.1 13.1 14.3 15.3 16.3 17.2 18.0 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.3 17.1 17.1 17.1 17.1 18.3 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.3 17.1 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.3 17.1 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.3 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.3 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.3 22.3 22.3 22.3 22.3 22.3 22	-	2.3 13	44	9	3	9		0 00	. 4	19.	C (~ ;	9.	÷.	+	N	0.	2	è
2.0 13.4 14.5 15.5 16.5 17.3 18.1 18.8 19.4 20.0 20.6 21.1 21.5 22.0 22.4 22. 2.0 13.3 14.4 15.5 16.4 17.3 18.0 18.7 19.4 20.0 20.5 21.0 21.5 22.0 22.4 22. 1.9 13.2 14.4 15.4 16.4 17.2 18.0 18.7 19.4 20.0 20.5 21.0 21.5 22.0 22.4 22. 1.8 13.1 14.5 15.4 16.3 17.2 18.0 18.7 19.4 20.0 20.5 21.0 21.5 21.9 22.4 22. 1.7 13.1 14.3 15.4 16.3 17.2 18.0 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.4 1.7 13.1 14.3 15.3 16.3 17.2 18.0 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.1 15.3 16.3 17.1 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.1 15.1 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.1 1.6 13.0 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.1 1.6 13.0 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.1 1.6 12.9 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.1 1.6 12.9 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.3 22.3 22.3 22.3 22.3 22.3 22	•	•						•	•	•	0 2	~	•	-		2	0.	2	ċ
2.0 13.3 14.4 15.5 16.4 17.3 18.0 18.7 19.4 20.0 20.5 21.0 21.5 22.0 22.4 22.1 1.9 13.2 14.4 15.4 16.4 17.2 18.0 18.7 19.4 20.0 20.5 21.0 21.5 22.0 22.4 22.1 14.3 15.4 16.3 17.2 18.0 18.7 19.4 20.0 20.5 21.0 21.5 21.9 22.4 22.1 17.2 18.0 18.7 19.4 20.0 20.5 21.0 21.5 21.9 22.4 22.1 17.2 18.0 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.4 22.1 17.2 18.0 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.4 22.1 14.3 15.3 16.3 17.2 18.0 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.1 15.3 16.3 17.1 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.1 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.1 15.1 13.0 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.1 16.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.3 22.3 22.3 22.3 22.3 22.3 22	-	2.1 13.	4 14	5	5.5	ø.	7	18.	Ø.	0	0	ر د	•	,					
1.9 13.2 14.4 15.4 16.4 17.2 18.0 18.7 19.4 20.0 20.5 21.0 21.5 22.0 22.4 22.1.8 13.1 14.3 15.4 16.3 17.2 18.0 18.7 19.4 20.0 20.5 21.0 21.5 21.9 22.4 22.1.7 13.1 14.3 15.4 16.3 17.2 18.0 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.4 22.1.7 13.1 14.3 15.3 16.3 17.2 18.0 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.4 22.1.7 13.0 14.2 15.3 16.3 17.1 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.1.9 13.0 14.2 15.3 16.3 17.1 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.1.9 13.0 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.1.9 13.0 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.3 16.5 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.3 22.3 22.3 22.3 22.3 22.3 22	-	2.0 13.	3 14	4	5.5	9	7	4-		7	• •	v (0 1	-	.	22	0.	Ç,	Š
1.8 13.1 14.3 15.4 16.3 17.2 18.0 18.7 19.4 20.0 20.5 21.0 21.5 22.0 22.4 22. 1.7 13.1 14.3 15.4 16.3 17.2 18.0 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.4 22. 1.7 13.1 14.3 15.3 16.3 17.2 18.0 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22. 1.6 13.0 14.2 15.3 16.3 17.1 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22. 1.6 13.0 14.2 15.3 16.3 17.1 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22. 1.6 13.0 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22. 1.6 12.9 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.	-	1.9 13.	2 14	4	5.4	9	1	0 a	0 0			N (ů.	+	+	22	0.	2	2
1.7 13.1 14.3 15.4 16.3 17.2 18.0 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.4 22. 1.7 13.1 14.3 15.3 16.3 17.2 18.0 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.1.6 13.0 14.2 15.3 16.3 17.1 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.1.6 13.0 14.2 15.3 16.3 17.1 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.1.4 13.0 14.2 15.3 16.3 17.1 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.1.6 13.0 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.1.6 17.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.3 22.3 22.3 22.3 22.3 22.3 22	1	1.9 13.	1 14	*	4.			•	01	19.	20.	0	i.	•	Η.	22	0	2	~
1.7 13.1 14.3 15.3 16.3 17.2 18.0 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.4 22. 15.1 14.2 15.3 16.3 17.1 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22. 15.5 15.3 16.3 17.1 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22. 17.1 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22. 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22. 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22. 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22. 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.	-	1.7 13.	1 14	. M)	4 · 4	•		C .	100	19.	20.	0	5	7	+	2	0.	~	
1.7 13.1 14.3 15.3 16.3 17.2 18.0 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.1.6 13.0 14.2 15.3 16.3 17.1 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.1.6 13.0 14.2 15.3 16.3 17.1 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.1.4 13.0 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.1.6 12.9 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.3 22.3 16.5 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.3 22.3 22.3 22.3 22.3 22.3 22				1	•	•	•	10.	E	19.	19.	8	5.	, +	-	21	6		
1.6 13.0 14.2 15.3 16.3 17.1 17.9 18.7 19.9 20.5 21.0 21.5 21.9 22.3 22. 1.5 13.0 14.2 15.3 16.3 17.1 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22. 17.1 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22. 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22. 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22. 17.9 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.		1.7 13.	14	3	M	, C	_	a		,						!		,	1
1.6 13.0 14.2 15.3 16.3 17.1 17.9 18.7 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.3 10.4 13.0 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.3 10.9 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.3 22.3 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.3 22.3 22.3 22.3 22.3 22.3 22		1.6 13.	4	<	<u>بر</u>) H		c r	101	19.	19.	20	5	.	+	21	0	2	C
1.6 13.0 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.1.6 12.9 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.1.6 12.9 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.3		1.6 13.	4	1	M (. W			2	19.	19.	20	2		•	21	0	1	, 0
1.6 12.9 14.2 15.3 16.2 17.1 17.9 18.6 19.3 19.9 20.5 21.0 21.5 21.9 22.3 22.	+-1	1.4 13.	4	· ~) P	2 0			x 0 (6	6	20	5	·	***	21	0	2	, ,
10.0 17.0 17.0 17.5 17.0 21.0 21.5 21.9 22.3 22.	11	1.6 12.	4	2	M				0	61.	13	20	5	+	• إسي	21	0	8	N
				i			•	•	- 07	14.	, , ,	2	S.	e Jud		21	0	2	2

11.5 12.9 14.2 15.2 16.2 17.1 17.9 18.6 19.3 19.9 26.5 21.0 21.5 21.9 22.3 22.7

4.0



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #1.77

K (,	-
K13	0.5	9.0		, GC	0.9		1.1	1.2	\$ 000 \$ 000 \$ 000	1.4	6.4	1.6	1.7	. 40 1 40	1	6	0
} •	1 •	0	•		•	0		. 0	١.			l ′	0	0	0	. 0	•
		0	0					•		•			0	•	M	מי	•
											0			v-(3	N	
								•	0	0	9		•	8	28	~	•
							0	0	7	4	0		~	7	27	2	•
				0.	0				•		•	26.1	26.7	26.8	27.	0 27	•
	.0	0.	0.		0	0	N	7.	26.1			ic.	9	9	26	~	•
0					•	-	5	r.	+	4	10	10	K	9	26	~	
					œ	4	3	, (4	4	*	**	5	5	R.	26	~	•
	0			6	2	ċ	2	۲٠)	3	3	4	4	5	5	2.0	~	•
			4	01		-	2	2	3	3	4	4	5	5	25	~	•
	• 0	· c	22.2	20.9	20.9	-	21.8	22.4	22.9	•	24.0	24.5	25.0	25.4	N	8 26	•
	0	Ċ.	•	ď	0		-	8	2	ю.	M)	4	*	5	23	~	•
	+	0	80	6	6	0		2	2	·)	PC	4	4	5	23	~	•
	\$		8	80	6	0	+	+	S	M	3	4	4	5	25	~	•
_	9	ė		18.5	•	0	+	+	2	3	8	4	4	ĸ.	25	N	•
	15.5	16.3		•	19.5	0	20.9	21.7	22.4	23.0	23.6	24.2	24.7	25.2	25.	6 26	0
_	4	÷	~	80	0	•	0	+1	~	2	•	4	4	Š	87		•
		15.7	16.9	16.0	19.0	•		+	ò		3	4	4	5	5	~	•
	4.	r.	. 9		8	•		•	2	2	2	4	4	5	1	~	•
	4	r.	9	7.	8	6	0	•	i	2		•	*	'n	10	N	•
		r.	•	•	©	19.7	0	21.4	22.2	2		24.0	24.6	25.1	25.	5 26	•
	~~,	r.	16.5	7.	8	•	0		?	· CU	5	4	-	5		(1)	•
9	3	5	·C	7	80	•	0	1.	8	2	m	4	4	5	5	2	•
	13.5	15.0		17.6	18.7	6	20.5	21.3	22.1	22.8	23.4	24.0		25.0	25.	5 26	0

YARN BULK DENSITY = 2.00

	.6 1.7 1.8 1.9 2.	0. 0. 0. 0.	0000 0000 00000	27.6 27.8 28.1 28.3 28.6 27.1 27.4 27.7 28.1 28.4 26.7 27.1 27.5 27.9 28.2 26.4 26.9 27.3 27.7 28.1 26.2 26.7 27.2 27.6 28.0	26.1 26.6 27.1 27.5 27.9 26.0 26.5 27.0 27.4 27.9 25.9 26.4 26.9 27.4 27.8 25.8 26.4 26.9 27.3 27.8 25.8 26.3 26.8 27.3 27.7	5.7 26.3 26.8 27.3 27. 5.7 26.2 26.7 27.2 27. 5.6 26.2 26.7 27.2 27. 5.6 26.2 26.7 27.2 27. 5.6 26.2 26.7 27.2 27.	25.6 26.1 26.7 27.2 27.6 25.5 26.1 26.6 27.1 27.6 25.5 26.1 26.6 27.1 27.6
; ; ; ; ;	.4 1.5			7.6 27.5 2 6.6 26.8 2 6.0 26.3 2 5.6 26.0 2 5.3 25.8 2	5.1 25.6 2 4.9 25.4 2 4.6 25.3 2 4.6 25.2 2	4.5 25.1 2 4.4 25.1 2 4.4 25.0 2 4.4 25.0 2	4.3 25.0 2 4.3 24.9 2 4.2 24.9 2
T.A.	2 1.3		0. 0. 63.0 3	8 28.2 2 7 25.4 2 8 25.7 2 3 2 4.8 2 5 2 2 3 2 4.8 2 5 2 5 2 5 2 5 2 5 2 5 2 5 2 5 2 5 2	2 24.1 2 24.1 2 24.1 2 23.9 2 23.9	11 23 23 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	8 23.6 2 7 23.5 2
80	1.1		0.00.00.00.00.00.00.00.00.00.00.00.00.0	37.6 29. 28.4 27. 25.9 25. 24.7 24. 23.9 24.	23.4 23. 23.1 23. 22.8 23. 22.6 23.	22.3 23. 22.2 23. 22.1 22. 22.1 22.	22.0 22. 21.9 22. 21.9 22.
•	.9 1.0	.00		0. 35.9 6.6 27.3 6.4 24.9 3.9 23.7	2.7 22.9 1.9 22.4 1.4 22.1 1.1 21.8 0.8 21.6	0.6 21.5 0.4 21.3 0.3 21.2 0.2 21.2	0.0 21.0 0.0 21.0 9.9 21.0
. !	•	.00		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 23.0 2 2 21.6 2 6 20.8 2 7 20.3 2 1 19.9 2	7 19.6 2 1 19.4 2 1 19.3 2 0 19.1 2 8 19.0 2	7 18.9 2 6 18.9 2 5 18.8 1
	0 9	0 0 0			10. 26. 37.5 22. 21.9 20. 19.6 19. 18.5 19.	17.8 18. 17.3 18. 17.0 18. 16.7 18.	16.4 17. 16.2 17. 16.1 17.
	0.5		00000	00000	0. 0. 23.9 18.9	17.2 16.4 15.8 15.4	14.0 14.7 14.6
2 N E E E	ACT0		11111 100 100 100 100 100 100 100 100 1	101 2 2 2 2 2 2 4 2 5 4		8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	35 37

YARN BULK DENSITY = 2.36

8 P B								BET		,		1	1		1	
FACTOR [K1]	0.5	9.0	0.7	0.8	0.0	1.0	-	1.2	1 PO 1	4	1.5	1.6	1.7	1.8	1.9	2.0
!	1	t	i	1	1 1	1	1 1 1	! ! !	1 1 1	! ! !	• • •	t ; ;))))	1
	0			0											6	
	U												0		4	Ġ
	=	<u>.</u>	0	0	0			0	0	0	0	0.	45.9	38.6	36.2	,
	0									•			Š	4	.	m
19	0		c	ċ			ċ	0		Ŋ	•	m	8	'n	2	ċ
	c			-						4	~	+	+	+	-	++
									32.6	31.2	30.7	30.6	30.6	30.8	31.1	31.3
٠,						0	\$	7	•	6	6	6	0		•	1
, M					0	5		6	80	8	•	6	•		•	•
	0		0	0	37.2	29.3	28.0		-	8	•	6	•	6	0	•
			(,		,		•	•		a	α	0	0	<u> </u>	_
				• H		• 1	• D •	•	•	•	•	• a				
	• 0		6	28.5	26.1	25.8	920	26.4	200	C. /C	200	70.0	2 4 6	2000		
				2	4	٠.	, ı	• ı	ė,	•	:	•	•	•	> C	
		•	4.	M	4	4.	Ċ	٠	•	: ,	: ,	•			• (•
		25.2	٥.	٠.	m	4	4	5	•	•		œ	ò		•	•
	- a	ć	•		М.	ь.	4	5	•	9	7	80	8	6	0	
			, -	, -	2	8	4	Š	•	•	•	28.0	28.6	29.1	29.7	30.1
	0	0				2	4	ď.	5	•	7	&	80	6	•	
	· a				ί .	, m	4	'n	5	•	7	7.	œ	<u>.</u>	•	
) W	17.6	18.7	19.9	21.0	22.1	23.2	24.1	25.0	25.8	26.5	27.2	7	8	.	•	0
				+							1	r		c	C	
	7	œ	•	•	٠ د	m	4	4		6		:,	0		•	
	•	æ	·	ċ	+	M	4	4	·	6		:,	, 0	•	• •	
37	16.4	17.9	19.4	20.7	21.8	22.9	23.9	24.8	25.6	26.4	27.1	27.0	***	29.0	200	
	ŝ	7	•	•	.	÷	က က ၊	4	٠ د	• ·		:,			. 0	· -
	ċ	7	6	•	+	2	8	4	ζ.	.	:	:	•		•	•

YARN BULK DENSITY =2.50

RP VER								BET	1	! !	i	1	1	1	1	,	
FACTOR [K1]	0.5	9.0		0.8		1.0		1.2	1.3	+	1.5	1.6	1.7	1.8	1.9	2.0) (
1	ŧ			t	1	1	1 1	1 1 1	! ! !) ! !] ;)))) 	 	
				0								0.	0	0	•	9	
														0	6	4	
											©				•	7	
				0					0.	0	6		40.0	37.1	35.8	•	
19	0	0	0	0	0.	•	0	0			P		v.	₹.	4	m	
				′ (0	×	~	~	0	C		
				• •			• •	•	> v	3	200) E	, ,	40.4		
				6			•	•	ċ	• •	,				i,	i	
				•			•	S	?	.		;			;	·	
				0			4.	÷	ö	0	Ö				H	÷	
	0	· C	0	-	0	33.6	30.2	29.4		6	6		•	.	-	;	
					4	•	80	80	φ	æ	29.3	29.7	30.2	30.6	31.1	31.5	
				7.	8	7	7	7	ж	8	ò	·		0	6	÷	
				60	•	•	•	7		φ.	æ	٠.	•		•	÷.	
			6	5	3	5	Ġ	9		8	80	٠ •	•		ö	÷	
29	0	39.8	25.0	24.3	24.5	25.1	25.8	26.5	27.2	•	8	•	6		0	₩.	
					٠,		,	,	•	r	٠,			•	•		
	<u>.</u>	5	3	m	4	•	5	ė	:	:	.	· (_(•	•	; ,	
	₹	2	8	٥.	m	₹.	٠.	÷	•		•	.	•		•	÷,	
	2		+	ò	3	4	5	•	•		œ	Ø	Ġ	30.0	30.5		
	0	_	+	2	m	4	3	5	•	7	€	8	.	6	0	÷	
) T	18.8	19.6	20.7	21.8	22.9	23.9	24.9	25.8	26.6	27.4	28.1	28.7		•	•	÷	
	•		•	•	c	-	-	u		_	α	œ	0		Ġ	0	
	ò	•	•	-	i	• •	•	• •	•		•						
		8	•	+	<u>٠</u>	m	4	3	ċ	•	0			•	•	•	
	7	8	-		2	5	4	5	÷	7	©	œ	•	•	6	•	
	· •	α	0		2	m	4	5	\$	7	1	28.6	29.5	29.8	30.4	30.9	
 0 O M	16.7	18.3	19.8	21.2	22.4	23.5	24.6	25.5	26.4	27.2	•	80	•	6	6		
	•	•	•	1	,	•											



MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =2.75

		1	1					96			1					
X		9	6	0.8	0.0	1,0			1.3	÷		7.6	1.7	80 ;	4.9	2.0
)	! !		 	•		1	ł))		i I				
		, c		O												
				<u>.</u>											•	•
				0									•		4	4
									0	0		0	5.	5	40.7	30.9
40	0	0	0.	·	0.		0	•		°.	0	46.9	41.1		7.	9
	Ü			ċ						•	4	20	•		R.	r.
					. 0					0	•	3	4	4	4	4
								0	60	S	4	2	3	2	19	*
				0	. 0			~	4	33.1		2	32.9	33.1	33.4	33.7
4	0	0.	0	c	0	0	36.7	33.1	32.0	1.		32.1	6	5	'n	M
P. C.						•	2	•	0	**		•	2	~	~	3
					60	•		•	0	0	0	+	*	2	2	W
				· m	30.9		28.9	29.1	29.5	30.0	30.5	31.0	31.5	32.0	32.5	32.9
					80	7		٠ ص	6	œ.	0	0	**	**	8	0
56	0	о С	34.2		•		7.	80	80	0	0	0	**	+	ò	N)
			7	Š	•	•	7.	7	80	0	6	0	-	+4	S	·
		0	S	4	_	•	•	L.		29.1	29.8	30.4	•	31.6	32.1	32.6
		4	3	4	5	u)	9	7.	8	c,	0	Ú.	0	+	0	ò
	9	S	CU	2	4	'n	40	~	60	8		•	0	+	2	2
40	25.8	21.6	22.4	23.4		25.4	26.3	27.2	28.0	•	0	ເ	0	·	ċ	C
_	:	0	2	2	4	5	•	1	7	00	6	0	0	+	2	2
_	6	0	•	2	4	Γ.		۲.	7	8	6	0	0	-	•	2
47	18.8	20.1	21.4	22.7	23.5	25.0	26.0	26.9	27.8	28.6	29.4	30.1	30.7	31.3	31.9	32.4
_	, 00	6	+	2	٠,	+	5	•	1.	œ	•	0	Ö	<u>.</u>	-4	ò
-	φ Ω	6	بہ	5	m	4	3	•	7	8	0	0	0	-	•	0

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #2,95

	1	1	 	!	1	1	1	89	•	1	1	1		! !	1	t t t t
K1 C C C C C C C C C	0.5	0.6	0.7	80	0	D .		1.2	₩ ;	4	£ .	1.6	1.7	+1 1 +1 1 0 1	6	2.0
6 () 6 ()	 	: (• •	•	1					•			•	c	
																•
																0
														•	•	8
													0	4	7	3
4	°,	0	0	0.	0.	0	0	0	, 6		. 0		51.5	43.2	40.5	39.3
										C	,	r.		a C	,	7
										, ,				,		
									:	,	· ·	0 .	•	0 1		D L
								0	1.	0		•	3	•	0	
						с С	0	55.0	38.8	36.0	35.0	34.7	34.6	34.7	35.0	35.2
	0	٠,	Ċ.	0.	0		9.09	7.	4	4	%	м.	رس	4	+	4
2.5	.	c.					7	P)	5	2		3	**	M	4	*
							P			0		C		~	-	4
					• ox	. (•		 • +	 J .				, M		4
		: c		• •	3.1.0	30.1	20.00	1 0 M	30.5	31.0	35.6	32.1	30	33.1	33.6	34.4
					0	90	0	0		0		•		1	147	4
				;	•	•		•	•	•	•	ŧ	1	•)	
	.0		S	æ	7.	00	60	6	6	0	-4	+	8	8	10	8
		\mathbf{C}	80	9		7.	60	8	6	0	#	-4	N	ò	P	3
		-	\$	5	. 9	7	7	8	6	0		-	2	8	5	3
		25.9	24.8	25.2	25.9	26.8	27.6	28.5	29.3	30.0	30.8	31.4	32.1	32.7	33.2	33.8
	29.1	•	•	•	•	•	7	60	6	9.	6	+	5	3	3	3
	₩.	~	(A)	4	5.	•		00	•	Ch.	•	•	~	0	2	۲٦
	~		C	4	ď	4	1	α	o	0	•			C	-	~
0 M	20.4	21.2	20.00	23.7	24.9	26.0	27.0	28.0	28.3	29.7	30.5	31.2	31.9	32.5	33.1	33.6
_	0		2		4	5	•		60	6	0	·	-	0	2	3
39	•	0	5	3	4	iv.	ċ	7.	8	6	 C)	**	-	8	3	3



YARN BULK DENSITY =3.25

								96								1	1
* _	0,5	9.0	0.7	0	0.0	1.0	1 +	1,2	H .			1.6	1.7	60	44 0,	8	
))	i I	1	1	1) 	1	•) 	6 1 2	l I) 		•)
5																	
16																	
17																0	
18								0						0		55.	90
18	0	0	0	0	. 0		0.	0	.0	. 0	0	.0	0.	65.3	48.6	4	S
50			ů	c:								•	2	S	~	4-4	
21											0	~	2	0	•	0	· PO
25									0	0	4	0	0	80	C	0	•
23									68.6	42.9	•	8	37.9	7	37.4		ın
2.4			0.		0	0.	0.	74.4	+	•	~		9		•	~	0
52	0	C		0			0	0	7.	•	W)	r.	10	•	•		V O
26						•	0	9	ľ.	4	4	*	5	5	•	9	œ
27			0	0	0	41.8	35.4	34.0	33.7	33.8	34.1	34.4	34.8	35.3	35.7	36.	O.
28					00	م	3	5	3	3	~	4	4	R.	5	•	_
59		0				8	+	-	8	C	M)	3	4		5	S	~
30				7	+	0		+	-	2	m	3	4	4	8	5	~
			+	-4	0	6	0	0	-	2	å	3	4	4	₹.	r.	5
			35.6	0	80	9	29.8	30.5	31.2	31.9	32.6	33.3	33.9	34.5	35.0	•	•
		-	8	7.	80	8	•	0	+	+	0	3	3	4	5	S.	۱۵
40	0	29.7	•	•	27.5	28.3	•	0	0	-	~	3	3	4	*	ŝ	10
_		•	5	•	7	œ	00	6	0	+	~	وتعنا	3	4	4	5	•
-	1	4	च	r.	9	7	90	0	0	+	2	2	5	4	4	5	•
37	24.9	23.5	24.3	25.4	26.5	27.6	28.6	29.6	30.5	31,3	32.1	32.8	33.5	34.2	34.8	35.	e po
	~	5	m	5	9	7	8	0,	0	+	ò	5	<u>ب</u>	4	4	ŝ	N)
35	.	?	3	4	9	7.	60	0	0	*4	2	2	3	4	*	r)	m

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #3.54

WARP

1		CA.			6 W C			00000	တ ပေး ထ
•	NI		50	4 8 8 9	8 8 8 8 8 9 9 9	~ ~	8837 847	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	366. 366.
1	4.9	94.0	D P)	44.44.4	4.00	7.	00000000000000000000000000000000000000	888888 8888 8888 8888 8888 8888 8888 8888	36.3
	-	00	0.0	39.0	38.2 37.6 37.2	9 9	888888 88888 8888 8888 8888 8888 8888 8888	80000000000000000000000000000000000000	33.0
1			50	44.00	33.1	9 9	88888888888888888888888888888888888888	88888 888 88 88 88 88 88 88 88 88 88 88	6.48 6.49
1	9			85.	38.2	6.0	まままま 5.57.4.4.4 5.40.60.6	8 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	3.48.2
1	1.5		00	46.5	38.7	50.00	88888 44448 868949	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	888 888 448
1	∜ ←				40.0 37.7	r. 4	888888 888888 88888	88888 8888 8888 8888	32.6
1	4.3	0.0	0	0.0.72.3	39.9	R 4	800000 80000 800000 80000	3322 332.2 31.8 61.8	31.7 31.6 31.6
BEY	+				99.0 3.0 89.2	וני ב	333.33	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	30.6
1	→	0.0		000	000		33.53	30.5 30.3 30.1 29.9	29.7 29.6 29.5
i	1.0	00		000	000		34.3 32.6 31.5 30.7	20.7 20.1 20.1 20.0 20.0 20.0	0 0 0 0 0 0 0 0 4 €
	0 0	00		000	 		38.3 31.7 20.4 20.4	28.5 28.5 27.8 27.6	27.2
1	0.8						34.2 34.2 31.1 29.5	200 200 400 400 400 400 400 400 400 400	25.0
(0.7	00					0. 0. 37.5 31.2	228 228 238 25 25 25 25	000 444 000
1 	0							25 24 2 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3	23.6
1				 ၁၀๓				0 60 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	22.8 21.9 21.3
V E R	≪	1 8 6			886			6 40 K 60 G 6 K 60 K 60 K	4 4 4 0 4 ()

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #3.75

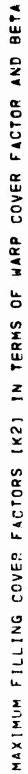
								BET	1	1	1	1	1			1
A K	0.7	9.0	0.7	0 . 0		1.0		10	1 1	1 1 1	1.5	1.6	1.7	41	4.9	2.0
1 1 00 1 +1		0 .	0	9 .	0.	t •		. 0		0	0	0	9 1	0	0	C:1
												•				•
							0					•	0.	0	•	0
				•								0	4	· N		Š
						0					0	5	6	5	2	3
			0	٠ ٥		0	0	<u>.</u>		0	59.1	47.1	44.0	45.6	42.0	41.7
	0	0.		0	0						5	?	-	`. O	0	0
								•	R.	4	-	0	0	•	•	0
				0	0		0	58.4	43.3	40.4	39.4	39.0	39.0	59.1	39.4	39.7
							90	2	0,	8	•	œ		60	•	6
								•	7	7		7	7	60	90	•
	0	ċ	0.				60	9	•	•	•	7.	7.	7	60	60
30	0	c			r.	7	r.	i	i.	E)	•	•	7		•	00
			0	ċ	00	35.0	34.3	34.4	34.7	35.2	35.8	36.3	36.9	~	38.0	38.5
				2	4.	3	3	3	4	4	5.	9	•			00
				4	ė	2	2	3	3	.	5	٠.	9	7		
	0.	9	38,2	_	31.3	+	2	è	M	4	•	ر ب	٠,	,	7.	60
	0		~	0	0	+		~	2	4	4	r.	•	7	~	40
	0	ć	29.6	29.5	29.0	30.6	31.5	32.3	33.2	34.0	34.8	35.5	36.2	36.9	37.5	38.1
			œ	00	6	0	=	2	3	3	4	٠ ۱:۲۰	9	•		80
	٠ ۵	7	7	7	80	0	•	5	٠ د	3	4	5	•	9	7	80
		•	\$	7.	8	•	0	÷	3	3	*	5	•	•	7	œ
	5.	r.	9	~	or 2	6	0	-	2	3	4	'n.	•	•		80
41	23.7	24.4	25.6	26.9	29.5	29.4	30.6	31.6	32.6	33.5	34.4	35.2	36.0	36.7	37,3	37.9
-	?	3	5	9	60	6	0	+	2	س	4	5	5	•	7	7



MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =4.00

_			1	!		I	((₽6	,	2			i		1	
▲ F	0 بر			0 . 8	6	. 0	# # # # # # # # # # # # # # # # # # #	1.2	1.3	→ !	1.5	1.6	1.7	4.3	₩ 1	2.0
1 80 1			•					•	0			•	.0			0
		<u>ت</u>		<u>.</u>	0.	0			•					•		•
													0	O	•	-
			0	c									0	0	4	6
		<u>-</u>	٥.									0	3	-	7	•
	0	<u>.</u>	ت		0		0	0	0	0.	0	58.0	48.9	46.0	44.7	44.0
	0	0.	0	0		0		0				7	*	10	2	2
			0						0	m	8 0	3	Ö	8	ë	N
	0				0	0.	6	0	53.3	44.7	42.3	41.4	41.1	41.0	41.1	
							0	S.	3	+4	0	0	0		•	0
				0			•			φ.	0.	0.	0	•	0	Ö
	0.	0.	0	. 0			3	6	φ	8		90	6	•	•	0
						5	0	7	7	7		00	80	6	•	
	. 0	· c	0		. 9	39.1	36.9	36.4	36.5	36.8	37.3	37.8	38.3	38.9	39.4	39.9
						•	ď,	5	S	•	9	7	8	80	•	ò
				5	5	4	4	4	ď,	•	9	7.	7	8	•	•
					M	3	2	4	5	'n	•	7.	7	œ	o.	0
35			-	5	8	2	₩,	4	4	5	•	7	7	æ	•	•
	0	C	33.7	31.5	31.5	32.1	32.9	33.7	34.5	35,3	36.1	36.8	37.5	38.2	38,8	39.4
		5	0	<u>-</u>	0	+	2	3	+	ŝ	*0	٠.	7	æ	•	6
			6	6	0	*4	2	3	4	5	5	•	7	ф Ф	8	0
96		œ	00	•	0	;	?	3	4	4	ı.	9	,	80	c C)	0
_	ċ		,	œ	6	0	-	~	m	4	5	•		60	20	•
4	26.8	26.1	27.0	28.2	29.4	30.6	31.7	32.8	33.8	34.7	35.6	36.4	37.2	37.9	38,8	39.5
	4	r.	÷	7.	6	с С	-1	?	3	4	5.	•	7	7	60	6



TARN BULK DENSITY #4.13

								8					1			
* ~ .	0.5	9.0	7.0	•	0	1.0	+ + + + + + + + + + + + + + + + + + +	1.2	1.3	4		1.6	1.7	1.8	g= 	1
1 1 00 0	. 0			6		• •				•			000	000		0
																•
					0										6	5
													0	0	-	ċ
												0	26.	•	0	
		c		ධ ර						o c		75.8	52.7	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	46.3	4. V. A. G. A. G.
					•							·	•		•	•
									0	9		N.	10	6	'n	8
								•	6	7	*	2	0	0	2	2
		0			0	0	0.1	109.8	47.3	43.5	41.8	41.3	41.2	41.2	41.5	41.7
							•	47.	2	0	•	0	0	0	+	+
	•			0				+	0	6	•	6	0		0	Tel.
30						9		6	60	80	•	6	0	6		0
		0	0	0	0	42.2	38.5	37.6	37.5	37.7	38.1	38.6	39.1	39.6	40.1	40.7
				•	ů.	80	9	9	•			œ	80	•	•	0
						3	5	S.	•	•		œ	00	•	•	0
	0			0	5	4	4	'n		•		۲,	œ.	•	ò	0
35			5	5	2	PT)	4	4	R.	9	•	7	6 0	•	•	0
-			7	ò	ċ	2	m	+	'n	•	•		80	60	6	0
		0	ċ	-	÷	2	M	•	5		•	7	9	0	6	0
30	= 0	35.7	30.7	30.5	31.1	32.0	32.9	33.9	34.8	35.7	36.5	37.3	38.0	38.7	4.00	40.0
_		0	•	•	0	÷	ė	m	•		•	7	7	0 0	•	•
	7	00	00	6	0	+	S	3	4	5	•	7.	7	60	•	•
4.	29.3	27.2	27.8	28.9	30.0	31.2	32.3	33.4	34.4	35.3	36.2	37.1	37.8	38.5	39.5	39.9
	•	ċ	7.	œ	6	+	3	3.	4	'n	Š	7	7	6 0	•	0



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #4.60

\$ \cdot \cdo								BET						,	!	(
AC10R [K1]	0.5	0.6	0.7	60	0.0	0	-	1.2		4.	7.5	1.6	1.7	~ 1	٠ ا	2.0
0	0					0										•
	0														0	3
	0														0	7
										0				8	54.4	51.
	0	0.	0	0	0.	0	0	0	0	0		0	58.9		•	Ø
			0		0						•	9	0	•	7	•
										•	5	6	7		R	ĸ.
										4	•	9	5	4	4	d.
							0	0	5	47.4	45.1	44.2	43.9	43.9	44.0	44.
	0.		0		0	0.	0.			4	3	3	3		20	3
0 6	0	ċ		0			~	9	M	(V	0	8	2	N	20	3
			· c			0	47.8	42.9	41.5	41.1	41.2	41.5	41.9	42.3	42.8	43.0
						-	ċ	0	0	0	C	*-1		(V)	~	3
					9	2	6	6	6	•		0	+	+	5	è
	. 0	c c	0		45.2	•	е •	80	60	6	•	0		, #1	~	C
	0			-	0	7	7	7	80	60	•	0	0		~	2
				•		9	9	7	7	8	0.	0	0	•	•	2
			-	7	5.	'n	5	•		8	0	0	0	•	71	è
	0	C		34.7	34.3	34.7	35.5	36.3	37.1	38.0	38.8	39.6	40.3	41.0	41.7	42.3
3.5				5	M	•	5	•	•	7	œ	6	0	0	•	2
0 4		œ	o.	2	8	M)	4	5	9	7		6	0		•4	8
		M	-	•	01	3	4	Š	. 9	7	œ	S	0		-1	ò
54	·	50.5	30.2	31.0	32.1	33.2	34.3	35.4	36.5	37.4	38.3	39.2	0.0	40.7	41.5	42.1
		0	ò	0	• •	3	4	5	•	7	c	6	6	0	•	ċ
4 4	ю	α.	oC.	-	-	Ċ	4	S.	•	7	œ	6	6	0	-	3



MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF MARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.54

								B = ₹		j			1	1			1
X X	0.5	9.6	0.7	0		0 . 4	+ * +	1.2		₹ •1		4.6		4	4.9	2.0	
1 00			•	t -	•	•	. 0		0	0		•	•	•		0	
o															•	•	
													0	•	10	4	
									0	0	0	0	0	0 1		o :	
						0	e	•	ر د	0 1		10x	· I			- 1	
			e e			17.4	20 4 20 4	4 4 6 4 6 4	17.4	46.34	17.0	17.7	17.1	17.5	17.4	17.5	
				•		•	•	•	•		•	•	•		•		
	0		0		5	10	K)	3	15.7	15.9		16.4	16.6	16.8	17.0		
	°	•	14.9		14.2	•	•	15.1	•	5	•	9	•	•	•	7	
			5	بر	m	•	T	4	KU.	·	.	•	•	•	•	•	
	<u>ب</u>	•	2	N	m	P7	*	•	5	in.	æ.	•	•	9	•		
	0	+	2	2	64	50		4	5	K U	K)	•	•	•	•	7	
2!.	Θ.	•	•	2	P)	*	4	4	5	10	5	9	•	6	•	7.	
	10.0	10.9	11.7	12.4	13.0	13.6	14.1	14.5	15.0	15.3	15.7	16.0	16.3	16.5	16.8	17.0	
	0	c	-	ċ	'n	5	4	4	4	5	S.	ô.	•	•	•	~	
	•	0	• #1	5	2	· ·	4	+	4	5	6	•	•	•	•	-	
	•	0	-	ò	2	P)	•	4	4	ď.	ر. د	S.	•	ó	9	7.	
	•	0	•	è	2	100	4	•	4	5	80	r.	ý	•	9	7.	
	9.6	10.6	11.5	12.2	12.9	13.5	14.0	14.3	14.9	1,2.3	15.6	6.53	16.2	16.5	16.7	17.0	
	•	ċ	٠ ۲	5	~	3	4	4	4	'n	5	S	•	•	•		
	•	•		è	2	5		4	4	N	5	ľ.	•	Ś	•	7	
56	•		+	·	8	, D	+	4	4	R.	5	ľ.	•	•	•	7.	
	•	0	·	è	i	3	4	+	4	5		N	9	9	•	1	
31	9.5	10.5	11.4	12.2	12.8	13.4	14.0	14.4	14.9	15.2	19.6	15.9	16.2	16.5	16.7	17.0	
	•	0	• -1	c,	2	'n	4	4	4	5	5	ď.	9	. 9	•		

3-HARNESS

(Starting on page 112)

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.56

			~ N D O N	W W 4 4 4	ппппп	риппп	nnn
•		00	20877	~~~~	~~~~	~~~~	7.7
	6) 	N TO BO CH UI	4000	चित्तस्त सन्सन्त		000 000
-		66	80377	なるなるま	44444 7777	とうててて	***
	60		нычы	00000	0.00000	60 60 60 60	60 60 60
			44800 44800	ままままれるアフクロウ	* 9 9 9 9 *	66666	16 16 16
1			24864	0.077.00	000000 000000		ພາບຄ
			N H H H	99999	न न न न न	99999	9 4 4
		00	0 / 8 / V	20000 70040	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	00000 00000	66.6
	10		800	800000	00000	00000	999
		00	9449	****	4 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5		55.55
	*) 	027	M000V	V 0 0 0 0	onnnn	ທຸທ
		00	2000	44444	4 4 4 4 A A	4 4 4 4 4 5 5 5 6 6	255
		;	44	るちちちちち	50000	N N H H H	ਜਜ਼ਜ਼ 8 10 10
<	l L	1 2	न न	न न न न न	8 8 8 8 8 8 9 8 8 8 8 8	80 80 80 80 80 80 80 80 80 80 80 80 80 80 80 80 80	2 2 2 3
96	1 🕶	00	00000	N N N N 4	4444	44444 VVVVV	4 4 4 V V V
	 - 4	•	6 .4	600000	44000	##### 10000	0 0 0 4 ft ft
		00	10000	B B A A A A	• • • • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • •	4 4 4
	0.	-	• • • •	001010	0.0.0000	vvvv	
		100	40000	80 4 4 4 4 H H H H H H	99999 #####	ททททท ส.ส.ส.ส	444
	_			80 44 4 10 10 80 60 44 7 80	4 W W W W		e e e e
	. 60	6 6		ਜਜਜਜ ਅ ਨ ਲਅਨ	##### 6	enene Reserv	ने ने न य च च
		00	00000	04 W W W	00000	00000	200
	-			40 40 €	40007	~~~~	000
	1 0	00		5 4 4 4 A	~~~	 	- - - -
				441	40000	000000	
	l I		00000	00404	44400	00000	440
	•			00004	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9000	7.0
	•	•		ਰਜ	ਜਜਜ		_
	œ						
0. W (100	1	0 4 0 W 4	N 0 V 00 0	0 4 0 M 4	10 0 C 00 0	6 4 N
30	< ~	1	ਹੀਂ ਦੀ ਦੀ ਦਾ ਦੀ		20000		nnn



MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COYER FACTOR AND BETA

YARN BULK DENSITY #6.58

4 10 10		í	((9E		1		((•	1	*
5 X	0.5	9.0	7	0	0.0	1.0	1.1	6	10	4	6.5	1.6	-		0 1	• 1	0
1 0 0			 		00			00			00			00	90	00	
																	nomno
87 47 47 60 60 60 60 60 60 60 60 60 60 60 60 60				0 10 4 10 16 0 10 4 10 16		4 4 4 4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6	4 4 4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6	4 4 4 4 4 6 8 8 8 8 8 8 8 8 8 8	44444 66888 84676	44444 6666 74640	44444 4444 64548	10.00 10.00 10.00 10.00	244 144 16.00	なまままなろうちょうころ	まるままま かい ママアア フログラウム	2 - C - C - C - C - C - C - C - C - C -	00111
0 4 0 0 0 4 0 4 0 0 4	01111 0101 0001 0001	V 4 10 C H	40400	50000 50000 50000 50000 50000 5000 500	200000 200000 200000	44444	4444 7 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	84400 88888	ដាជាជាជា សល់លេខប ៤ស់សសស	2000000 200000	4444 4444 4444 4444 4444	44444 66666 6668	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	2444	4444 4444	7777	***
N N N N N N N N N N N N N N N N N N N	0.00	111111011101100	00000 	22222 22222 22223	44000 90000 90000	444BB 00000	44644 800000	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	22 22 25 25 25 25 25 25 25 25 25 25 25 2	ជាជាជាជាជ សសសសស សំខាត់សំខា	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	44444 66666 88888	4 4 4 4 4 6 6 6 6 6		44444 44444	7777	•••••
	000	10.9	41.8 41.9 8.11.	12.6 12.6 12.6	444 444 444	### ###	4 4 4 8 6 6	1500	######################################	14 14 14 10 10 10 10 10 10	116.2	4444 664 808	444 66.60 66.60	17.1 17.1	144 144 144 144	17.6	~ ~ ~

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.65

THREE-HARNESS WEAVE FABRICS

	1.9 2.		25.4 23.0 26.8 20.5 19.7 19.7 19.2 19.3		18.4 18.7 18.4 18.7 18.4 18.7 13.4 18.7	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	18.4 18.6 18.4 18.6 18.4 18.6
	जर्द ।		1200 1400 1400 1400	4 4 5 6 7 4 5 6 7 4 5 6 7 4 5 6 7	118 118 118 118 118 118 118		4 6 6 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
10	-	-	9 6 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1118 118 18 18 19 19 19	0.00 0.00 0.00 0.00		17.8 17.8 17.8
	1.5		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	118 118 117 118 118 118 118	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	なったこれである。	17.5 17.5 17.5
	3 0	0.0	60 80000 80000	4 4 4 4 4 4 8 8 8 8 8 8 8 8 8 8 8 8 8 8	**************************************	2555	4. K 4. K
 	1 	00	120°°°°°°°°°°°°°°°°°°°°°°°°°°°°°°°°°°°°	11771 1771 1771 1770	44444 6666 9966	44444	16.7
<			00000	14111 14091	4444 444	40000	16.3
6 0	•	00	% 0000 1000 1000	84444 8444 8444 8444 8444	44000	4 4 4 4 4 7 7 7 7 7 9 9 9 9 9	2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
	 	00	00000	0 1 4 1 8 9 1 4 1 8 9 1 4 1 8 9 1 4 1 8 9 1 4 1 8 9 1 4 1 8 9 1 8 1 8 1 8 1 8 1 8 1 8 1 8 1 8 1	7.67.7.	4446	15.3
	9 1.0	00	00000	4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	7.54 N N N N N N N N N N N N N N N N N N N	66666666666666666666666666666666666666	14.8 114.8 114.7
	0	00	00000	2 4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	4444	44444	1
	0	00		8 0 0 0 0 0 0 4	# # # # # # # # # # # # # # # # # # #		5 4 4 4
	. 60		00000	4 0 0 0 0 0 4 4 0 0 0 0 0 0 0 0 0 0 0 0	04000 44444 88880	66778	666
		00	00000	44	3027	24444	5 H H H H H H H H H H H H H H H H H H H
	0	00			24440	20000	000
or mi	N X	000	0 4 8 B 4	10 10 10 10 10 10 10 10 10 10 10 10 10 1		00000 00000	



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.66

	!				!			BET	•					. (
3 X		-	7.0	ල ල	6.0	4	, +1	•	4	4		1.6	F-1	20 1	1.9	ć	0
60					•	•	9	0	0	0	6	•	•		0	0	
٥										•		•					
															0	0	
												0	ç.	0	•	·	'n
										0		7.	2	+	-1	•	
			•	•	0	•	0	9	0	23.9	21.3	20.4	20.1	19.9	6.51	6.6	•
4			•							0	0	•	•	0	D.	•	^
					0	37)	0	80	80	\$	•	60	60	80	•	6	8
			•	0	\$	7.	7	7	7,			00	60	•	60	•	
			7	7	9	•	6.	•	7	7		8	60	6	60	()	_
		19.3	15.6	15.3	15.5	15.9	16.2	16.6	16.9	17.3	17.6	17.9	18.2	18.4	18.7	18.9	•
19	16.9	•	4	•	5	3	•	9	9	7		,	80	60	60	60	_
20	8	1	•	4	4	5		•	9			7	60	90	10	8	•
		12.6	13.3	14.0		15.2	15.7	16.2	16.6	17.0	17.4	17.7	18.0	18.3	18.6	13.6	an.
	+	è	3	3	4	5	N	•	•	7.		7	80	0		60	~
	+	?	3	3	4	5	171	•	•	7		7	€	a	60	φ.	m
		ò	0	3	4		5	•	•	•		7	60	•	6 0	€0	
25	0	+	64	M	4			•	10	•	7	7.	60	•	60	60	•
	10.7	11.8	12.8	13.6	1.4.3	14.9	15.5	16.0	16.5	16.9	17.3	17.6	18.0	18.2	18.5	18.8	•
	0	+	2	3	₹.	4	.	•	•	•	7	7	7	æ	•	a	•
	0	+	2	·	4	4	N		•	9		7	7	8	•	8	øn.
	Ċ	+	2	M	4	4	N	•	•	•		7.	7	a	60	00	6 0
	0	+	8	3	4	4	K	•	Š	•		7		30	80	60	6 0
31	10.5	11.7	12.6	13.5	14.2	14.9	15.4	16.0	16.4	16.9	17.3	17.6	17.9	18.2	18.5	18.6	60
	0	+	5	M	4	4	5	9	•	9	7	7.	7	60	•0	80	6 0

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =0.67

THREE-HARNESS WEAVE FABRICS

ARP OVER								BET					1				
	0.5	9.0	0.7	0.0		1.0	1.1	•	•			1.6	1.7	1.08	6		•
 60	0.0			. 0	0.	•		•	0 0			0	0	•	0	0	•
•								•									
															0	0	
												0	•	0	60	*	
										0	6	S	m	2	-	+	
		0	•	0	0	0	0	•	0	25.7	21.9	20.8	20.4	20.5	20.1	20.1	
14		e)	°							•	•	6	6	0.	6		
-					0	80	0	a	60	80	•	٠.	60	6	•	19.4	
_					0	•		7		7	•	60	۔ س	8	•	٠ ٥	
		0	•	7		•	•		7	7	6	8	80	60	•	6	
	0	*	16.0	15.6	45.7	16.0	16.4	16.7	17.1	17.4	17.8	18.1	18.3	13.6	18.8	0	
49	19.9	14.6	•	•	•	3	•	•	•			©	60	0	60	0	
20	m	P3	5	•	4	1	•	•	9	~	7.	17.9	•	•	18,8	0	
	8	·	,	4		ĸ.	N	•	•			7	œ œ	8	6	·	
	4	12.4	13.2	14.0	14.6	15.5	15.8	16.3	•	•	17.5	•	18.1	•	٠	•	
	-	0	2	, M	•	K	5	•	•			7	60		•	භ	
24	11.0	~		5	•	.	S	•	•	7			60	6	60	60	
	0	8	~	100	4	10		•	•	7.		7	80			8	
	0	-	2	3	4	×.	E	•	9	7	•	7	60	8	60	80	
	0		2	3	4	.	5	•	•			7	ď,	0	9	, 60	
		11.8	12.8	13.6	4.4	15.0	15.6	16.1	16.6	17.0	17.4	17.8	18.1	18.4	18.7	18.9	
56		+	0	m	4	5	E	•	•	7.		7	00	Ø	60	60	
	0	•	0	m	4	50	5	•	9	7	7	7	00	10	•	3 0	
	0		2	, (M	4	S	_	16.1	16.6	17.0	27.4	17.7	18.1	18.4	18.6	18.9	
32	10.6	11.7	12.7	13.6	14.3	15.0		•	•	7.	7	7.	•	Ø	80	o O	



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.68

THREE-HARNESS WEAVE FABRICS

BETA	0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1	0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	0. 0. 0. 20.7 19.3 18.9 18.8 18.8 18.9 19.1 19.2 19.4 0. 21.5 18.5 18.0 17.9 18.0 18.1 18.3 18.6 18.8 19.0 19.2 18.4 17.1 16.9 17.0 17.3 17.5 17.8 18.1 18.3 18.6 18.8 19.1 15.9 16.0 16.2 16.6 16.9 17.3 17.6 17.9 18.2 18.5 18.7 19.0 15.4 15.8 16.3 16.7 17.1 17.4 17.8 18.1 18.4 18.7 18.9	14.5 15.1 15.6 16.1 16.6 17.0 17.4 17.7 18.0 18.3 18.6 18.9 14.3 14.9 15.5 16.0 16.5 16.9 17.3 17.7 18.0 18.3 18.6 18.9 14.1 14.8 15.4 15.9 16.4 16.8 17.2 17.6 18.0 18.3 18.6 16.8 14.0 14.7 15.3 15.8 16.3 16.8 17.2 17.6 17.9 18.3 18.6 18.8 13.9 14.6 15.2 15.8 16.3 16.8 17.2 17.6 17.9 18.2 18.5 18.8	13.8 14.6 15.2 15.8 16.3 16.7 17.2 17.6 17.9 18.2 18.5 18.8 13.8 14.5 15.2 15.7 16.3 16.7 17.2 17.5 17.9 18.2 18.5 18.8 13.8 14.5 15.1 15.7 16.2 16.7 17.1 17.5 17.9 18.2 18.5 18.8 18.7 14.5 15.1 15.7 16.2 16.7 17.1 17.5 17.9 18.2 18.5 18.8 13.7 14.5 15.1 15.7 16.2 16.7 17.1 17.5 17.9 18.2 18.5 18.8	13.7 14.4 15.1 15.7 16.2 16.7 17.1 17.5 17.9 18.2 18.5 18.8 13.7 14.4 15.1 15.7 16.2 16.7 17.1 17.5 17.9 18.2 18.5 18.8 13.7 14.4 15.1 15.7 16.2 16.7 17.1 17.5 17.9 18.2 18.5 18.8
		.00	000000 00000	4444 447 747	00 00 00 0 00 00 00 0 00 00 00 0 00 00 0	7 4 4 7 7 4 4 7 7 4 4 7 7 4 4 7 7 4 4 7 7	7 17.
BETA	1.2 1	0 6		9.3 7.9 18 6.9 17 17	66666 66466 66466 66466 6666	00000 00000 00000 00000	6.2 16
	1.1	60	• • • •	V 0 0 0 W	400000	るちちちきち	77.
,	+	00		00000	**************************************	# # # # # # # # # # #	£ £ £
!	0	00	00000	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	20000 0000 00000 00000	0000 r r s s s s s s s s s s s s s s s s	444
1	2 - 0	00			4444W	SH CH CH CH CH	10 to 14
	8	 - -			112.00.01	1120.11	11.9 12
1	0.5			n • • •	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	-0000	7.01

MAXIMUM FILLING COVER FACTURS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.69

OF 0. 1				• 1				BET	1	 	(* (•		·
Y.Y	. 2	9.0	6.7	8	0.0	1.0		• 🕶	1,3	-	1.5	4.6	1,7	4.0	ज ं।	~ 1	
000	0.0	00			00	00	00	00	00					00		00.	
•															1		
	0	0				0		0		, (2)	0		•				
													• •	D	0	•	
										•		0	•	M	c)		
. 4. 53	0		9.	•			0	•		40.8	23.4	21.7	21.0	20,7	20.6		
4										•	6	0	•	6	o.	•	
							-	6	•	•	•	0	0	6	•	•	
_					3	6	•	60	•	8		ق	60	6	o.	8	
				0	7			7		8		8	8	6	•	6	
	0	0	7	16.2	16.2	16.4	16.7	17.1	17.4	17.7	18.0	18.3	18.6	18.9	19.1	19.4	
19				E.	Ę,	•	÷	•		7		60	60	60	6	ò	
	*	10	4	+	5.	5	*	9	7	-	7	60	80	80	6	6	
	12.5	13.1	13.6	14.4	15.0	15.6	16.1	16.6	17.0	•	17.8	16.1	18.5	18.7	19.0	19.3	
	+	÷	5	+	4	5	•	\$	7			œ	œ	8	•	°	
-	·-	ò	3	4	4	.	•	•	•	,		œ	80	6 0	•	•	
4	+	5	2	4	4	5	1 0	•	•			œ	40	40	•	•	
_	+	C)		5	4	80		•	•	7	7	60	a	60	•	•	
_	4	~	3		4	Š	5	9	•	7.	7	00	œ	0	60	6	
-	ن	2		3	4	Ę	5	•	•		0	8	.	•	8	6	
_	10.9	12.0	13.0	13.8	14.6	15.5	15.8	16.4	16.8	17.3	17.7	18.0	18.3	18.7	18.9	19.5	
53	0	2	M	٠.	4	'n	5	•	•	7	7	6 0	œ	ف	60	•	
	0	8	2	3	*	5	5	9	9	7.		80	•	40	60	•	
	10.8	11.9	15.9	13.8	14.5	14.2	15.8	.6.3	16.8	17.2	17.6	18.0	18.3	18.6	18.9	19.5	
32	•	•	2	M)	4		r,	•	•	7.	7	3 0	œ	œ	œ	•	



HAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.70

9																	
A N N N N N N N N N N N N N N N N N N N								BET			ĺ			1.4			
FACTOR [K1]	0.5	9.0	0.7	0 . 0		1.0	1.1	1.2	1.3		1.5	1.6	1.7	1.8		(4)	0
1 80		0.0	i i •					0	0		0	i i •		0	•		
٥																	
																0	
													0.	0	0		•
											0	0	7	•	N.	o o	0
					0	0			0	O	24.3	22.1	21.3	21.0	20.8		5 0 (
											0	0	0	D	•	•	N
	0					•	8	0	•	0	0	0	•	0	_		•
				0	8	19.6	18.6	18.4	18.4	18.5	18.7	18.9	0	19.3	_	19.	_
			0	0	7	•		7.	7	80	60	8	8	•	0	0	Ŷ
		0	7	•	•	•	•	7	7	7	ED	•	о С	0	•	0	1 0
		16.1	15.3	15.4	15.8	•	•	7.	7.	7.	•	60	60	C,	•	•	R)
20	4	4	4	4	2	5	•	•	7	7		00	60	80	•	6	4
	ò	3	m		5	15.7	16.3	16.7	17.2	17.6	17.9	18.3	18.6	18.9	19.5	19.	4
	o,	2	3	4	5	Ŗ.	٠.	•		7		ф Ф	80	60	•	0	•
	+	2	5	*	4	S.		•		7	7	8	60	00	·	•	•
				4	4	3		9		7	7	œ	00	60	0	•	•
		12.3	13.2	14.1	14.8	15.4	•	16.5	17.0	17.4	17.8	18,2	18.5	18.8	19,1	•	
		2	3	4	4	v	•	•	7	7	7	80	60	•	•	ċ.	
	-	ċ	M	4	4	'n	•	9	7.	7	*	8	٠. ص		•	6	
	+	3	ю •	3	4	.	15.9	•	•	~	•	œ,	ੋ. ਹ	8	0	ċ	
		5	9	3	4	5	N.	\$	•			6 0	©	œ	•	•	
	0	8	3	3	4	5	80	•		7.		•	œ	80	•	0	ы
31	10.9	12.0	13.0	13.9	14.6	15.3	15.9	16.4	16.9	17.4	17.8	18.1	18.5	18.8	19.1	19.	17 3
	0	2	3	M)	4	5	2	. 9	•	7		œ	60	8	0	0	m

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WAR? COVER FACTOR AND BETA

YARN BULK DENSITY #0.71

THREE-HARNESS WEAVE FABRICS

			2000 2000 2000 2000 2000 2000	14000 14000 14000 14000	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	8 8 8 8 8 8 8 8 8 8 8 8	19 19 19 19 19
	6		0000 0400 040	90000 9000	99999 99999 99999	00000	419
• [-		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2000 2000 2000 2000 2000	199.0 199.0 199.0	44444 884 896 996 996 996 996	18.9 18.9
(. e-((000	30.6 20.7 20.2	44444 60000 60460	118.0 118.7 108.7 108.7	44444 8888 8686 866	18.6 18.6 18.6
•	4.6	90	0 0 0 0 0 0 7	44444 60000 84000	5 4 4 5 5 5 6 5 6 6 6 6 6 6 6 6 6 6 6 6	000000 00000 11111	8 8 8 8 8 8 8 8 8
	5.	00	2200.	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	4 4 4 4 4 4 4 4 4 4 6 6 6 6 6 6 6 6 6 6	44444 44444 6666	17.9
				8444 844 844 844 844 844 844 844 844 84	4444 7444 8777 6074	44444 44444 64666	アファ
	-			449 449 66 69 67 67	45000		17.1 17.1 17.1
30 P	10			2021 2011 2010 2011 2011 2011 2011 2011	1446.00 100.00 100.00	4444 6666 6666	16.6 16.6 16.6
	+			20 40 40 40 40 40 40 40 40 40 40 40 40 40	4 4 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	44444	16.0 16.0
1	4			200 114 16.72 16.33	1115 155 155 155 155 155 155 155 155 15	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	R: 10 tt
:	0		00000	9444 00000 00000	# # # # # # # # # # # # # # # # # # #	4 4 4 4 4 0 0 0 0 0	14.8 14.8 14.7
	0.0	i	00000	##200 #500 #500	24444 07860	4444	4 4 4 0 0 0
	0.7	i	00000	21.000 31.0000 6.00	4 4 8 8 8 4 4 8 8 8 6 4 6 6 4	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	
	0	00	00000	0 0.0 0.0	4 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	4.00.00	12.1
	0.5	1		00000	15.2 12.2 11.7	 	11.0 11.0 10.9
2 2 4	X	60 0	'		04000		



MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.72

0. U. b								867							1	•
X C	0.5	9.0	0.7	0	0.0	1.0	4.4	1.2	1.3	4	4.5	4.6	1.7	1.8	₩	N I
000	-		-						00				0.0	00	00	000
이 라 전 전 전 편 편	00000	00000	00000	50000	0000	00000	00000	00000	25.00.00.00.00.00.00.00.00.00.00.00.00.00	20000	00014	2000 2000 600	300 200 200 300 300 300	000000	2000 2004 2004 2000	2220
7 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	00000	0. 0. 0. 17.8		25.7 17.2 15.8	0 11 11 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1	24.0 18.0 17.0	26.9 17.9 17.9 16.9	21.2 18.9 18.0 17.6	20.1 18.8 18.2 17.9	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	44444 80000 70754	19.7 19.0 18.0 18.7	91199199999999999999999999999999999999	0.0400 0.0400	10000	200 200 400 600 600 600
01000	110000	4 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	44888 80000	24444 200024	24444 26666 24864	16.6 15.9 15.8	11111111111111111111111111111111111111	10000000000000000000000000000000000000	244 244 244 244 244 244 244 244 244 244	17.9 17.8 17.7 17.7	111111 88888 80000	11 18 18 18 18 18 18 18 18 18 18 18 18 1	444444 66884 600000	22.5.5	90909 0.0000	49.7 49.7 49.6
2222		20111 20121 74455	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	44444 800000	00444 00000	44444 50000 50000	8 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	16.7 16.7 16.7	17.2	17.7 17.7 17.6 17.6	44444 6666 640 640 640 640 640 640 640 6	4 4 4 4 4 0 0 0 0 0 0 0 0 0 0 0	11 12 13 13 13 13 13 13 13 13 13 13 13 13 13	##### 66666 #####	44888	99999 66666
030	11.0 11.0	12.2 12.2 12.2	13.2		4 4 4 9 9 8	15.5	16.2 16.1 16.1	16.7	17.2	17.6 17.6 17.6	448 48.0 8.0	4 4 4 4 4 4	18.7 18.7 18.7	19.0	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	19.6 19.6

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.73

A C T C B B B B B B B B B B B B B B B B B	0.0	1 0 1 0	1 1	80	0 0	4 0	H 6	101	M) C	4	. M . O		1.7	60	410	0 0	
o o											• •					•	
0401	0000			0000	0000	6000	0000		0000	0000	0000	000	000	26.5	2000	0 8 %	0 4 7
0 4									28.0					40	4 10		7 60
N.0 V.00 Q		00. 00. 19.2	00000	0.00 10.00 16.11	119. 147. 147.	143.0 143.0 16.2	2.61 1.61 1.71 1.0	191 19.2 17.7 17.7	190.0 180.0 180.7 190.0	190.1 19.1 18.6 19.3	9 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	9 4 H 9 8	0.001 1.001 1.001 1.001	10000	220 200 1190 190 190 190 190	00000	40400
9 H W M 4	211247 21247 21257	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	84488 0408V	207.95 407.96	44444 55565	44444 6668 84068	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	17.11.17.17.19.19.19.19.19.19.19.19.19.19.19.19.19.	7.71 6.71 7.71 8.71	18.0 17.9 17.9	4 5 5 5 5 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7	8 8 8 8 8 7 7 7 8 8 8 9 9 9 9 9 9 9 9 9	1100.0	2000 2000 2000 2000 2000	99999	00000	တ ကား လေး ကာ လ
rv 0 1 00 00	4 4 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	4444 66444	4 4 4 4 4 4 W W W W	44444 6666 64066	155.7 155.7 155.7	4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	4444 446 446 446 446 446 446 446 446 44	4 4 5 5 5 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6	17.8 17.8 17.8 17.6	111111 80808 00000	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	111188 1188 1188 1188 1188 1188 1188 1	9 9 9 9 9	00000 00000 00000	00000 00000 00000	44000
6 H ()	######################################	12.3 12.3	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	44.2	15.0 15.0	15.7 15.6 15.6	16.3 16.2	16.8 16.8 16.8	17.3 17.3 17.3	17.7 17.7 17.7	18.2 18.1	18.57 18.57 18.57	18.9 18.9	19.2 19.2	149 149 150 150 150	9 9 9	111



MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #6.74

A 50								4									
FACTOR	0	9.0	. 7	1 60	1	1.0	1.1	1.2	1.3	•	1.5		1.7	•	4.9	0	•
. 00			1	-			. 0		0.0	•	. 0	0		0		•	•
0					0			0			°.						
																c)	
									0					0	•	0	
											0	0	0		+	m	
	0		0	0	6			•	0	0	4.4	24.8	22.9	22.2	27 4 6 20 6	21.7	
											-			•	D	>	
. 							•	8		0	•	0	0	0		0	
						.0	0	13	CA.	6	6	6	6	0	6	0	
	0		0	0	0	18.6	18.4	18.4	18.6	18.8	19.0	F . 6T	19.5	19.8	20.0	20.5	
		0	•	60	7			7	œ	8	70	6	6	6	4)	Ċ,	
	0	21.8	•			. 9	7	7.	60	8	•	0	6	ó	0	0	
20	0	10	I	5	•	•	•	7	7	•	•	80	0	6	6	0	
		14.0	14.5	15.1	15.7	16.3	16.8	17.3	17.7	18.1	18.5	18.8	19.1	19.4	19.7	20.0	
	2	2	4	4	5	•	ý,	7	7	8	•	œ	6	•	6	6	
	8	5	3	4	5	•	•		7.	æ	•	æ	6	6	c.	•	
24		ŝ	3	4	5	10	•	7.	7	8	•	8	6	•	0	0	
		8	2	4	5	K	•	7		7	•	60	6	6	0	6	
_	-	2	5	4	5	5	•	7	~	7	60	8	6	•	6	6	
-	+	12.5	13.5	14.4	15.2	15.8	16.4	17.0	17.5	17.9	18.3	18.7	19.0	19.3	19.6	19.9	
_	+	'n	5	*	5	w		•	3	7	8	8	6	6	•	•	
56	11.3	ò	2	4		5	9	•	7	7	Œ	60	6	•	•	0	
		~	n	4	5	10	•	•	۶.	7	•	60	0	0	•	6	
31	11.2	12.4	13.4	4.3	15.1	15.8	16.4	16.9	17.4	17.9	18.3	18.6	19.0	19.3	19.6	6.63	
	<u>.</u>	?	8	4	5	3	•	•	7	7	•	60	6	6	•	6	

HAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.75

4 4 6						,		96∓	,			!					
X	. R	6.0	9.7	10	0	1.0	1:1	1.2	1.3	4	-	1.6	1.7	-		2	
000			_								00			60			
										24.1	2000	70000 70000	0 0 0 0 0 0 0 1 0	0. 30.0 22.5 21.1	222 223 223 211	0.000.000.0000000000000000000000000000	
		3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	00. 00. 17.	0. 0. 188.7	0. 20. 17.7 16.7	250 119.0 17.6	20.6 19.6 17.8	2000 1000 1000 1000 1000 1000 1000 1000	2000 2000 2000 2000 2000 2000 2000 200	20000 0000 0000 0000	0 4 4 4 6 8 8 6 4 6 0 0 0 8 6 8	20 110 110 100 100 100 100 100 100 100 1	100 100 100 100 100 100 100 100 100 100	20.5 20.1 19.9 19.8	40000	20000	
	8 4 4 4 4 4 6 4 6 6 6 6 6 6 6 6 6 6 6 6	74888 74888 76880	4 4 4 4 8 4 7 8 4 7 8 4 9 6 9 6 9 6 9 9 9 9 9 9 9 9 9 9 9 9 9	7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	15.2 15.2 15.3 15.4	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	40.87.9 40.87.9	24444 2777 84506	17.9 17.9 17.7 17.6	4 4 4 4 4 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		00000	111999 19999 1999	9 9 9 9 6 8 6 7 6 6	4 4 4 4 4 9 9 9 9 9 9 6 6 6 6	00000 0000 44440	
00000 0000 0000		12.8 12.7 12.6 12.6	80000000000000000000000000000000000000	4444		44444 66888	44444 44444 44444	44444 44444 44444	17.6 17.6 17.6 17.6	44444 60 60 60 60 40 0 0 0 0	4 4 4 4 4	4 4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6	2001 1100 1100 1100 1100 1100 1100 1100	00000 0000 0000	99999	2222	
		120 120 120 130 130 130 130 130 130 130 130 130 13	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	4 4 4	15.2	0.00 0.00	444 666 700 700	17.0 17.0 17.0	17.5 17.5 17.5	18.0 18.0	0 0 0 4 4 4	18.8 18.8 18.8	616	9 4 4 4	19.7		



MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.76

ARP OVER								₩							•	1
22	0.5	9.0	0.7	1		4.0	1.1	=	1.3	4.4		1.5	1.7	-		
80 0	-	•	-		-		_	ŧ	00							00
'리 레'리 리 리 ㅁ 레 집 팅 릭		90000	60000							00000 00000	20000	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	00000 11000 0000	00001 140	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
			0. 0. 17.6	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0. 21. 18.0	000 100 100 100 100 100 100 100 100 100	1200 1300 1300 1300 1300 1300	2224444 40884 74869	21 10 10 10 10 10 10 10 10 10 10 10 10 10	20 190 190 180 180 190	7	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	20.6 20.1 19.8 19.7	200.00 200.00 190.00	000000 00000 00000	00000 00000 00000
0 1 0 8 6 0 1 0 8 4	04800 'V-30-1	44555 44556 4474	N4444 V0400	0 4 4 0 8	11111 1000 1000 1000 1000 1000	8 5 4 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	111177 11077 10000 10000	17.7 17.5 17.5 17.5 17.5 18.5 19.5 19.5 19.5 19.5 19.5 19.5 19.5 19	18.1 17.9 17.8 17.8	8 8 8 8 8 6 8 8 8	44444 8884 800 600 600 600 600	44000 44000 44000	9444 9444 8448	19.8 19.7 19.7 19.6	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	20000 20000 20000
	6. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4.	12.9 12.7 12.7 12.7	44444 88888 88779	4 4 4 4 4 4 4 4 4 6 6 6 6 6 6 6 6 6 6 6	4 4 7 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	111666	16.7 16.7 16.7 16.6	17.3 17.2 17.2 17.2	7.71 7.71 7.71 7.71	118 18 18 19 19 11 18	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	118 118 18 19 19 19	88888 6666 6666	9 9 9 9 9 1 1 1 9 9 9 9 9 9 9 9 9 9 9 9	9 9 9 9 9	00000
	ধ ৰ গ লেল ল লেল	12.6 12.6 12.5	13.6 13.6 6	4 4 4 0 0 0 0	644 666 888 888	16.0 16.0 16.0	16.6 16.6 16.6	17.2 17.1 17.1	17.7 17.7 17.6	88 H 4 H H 4 H H	18.5 18.5	18.9 18.9	19.8 19.2 19.2	19.6 19.6	0 0 0 0 0	20.1 20.1 20.1

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.77

	l				I	1	(8ET		1		- 0				•
A A	0,0	9.0	6.7	0 . 0	3.	1 · 0	4.4	1.2	# ·	1.4	1.5	1.6	# · · · · · · · · · · · · · · · · · · ·	90	1.9	2.0
60	•	•	9.	0	•	i	0	•	0	. 0	,	0	0	0	0	. 0
o																
			-		0.											•
															0	.
				0								0	0		7	+
	0	0		•			•	0	0	0	•	28.7	24.6	23.3	22.7	
4.4				0								2	+	•	-	-
							0	•	8	-	6	0	0	0		÷
_	0.	•	0	0	0	0	21.8	20.4	20.0	19.9	20.0	20.1	20.3	20.4	50.6	20.8
-					2	6	•	•	•	6	6	•	0		0	0
				0		•	0	90	8	6	6	0	•	ö	•	0
19					7	~	7.	60	8	60	•	6	•	0	•	0
50		9	E	•	•	9	•	7	60	80	•	6	0	•	•	0
	(5	14.7	15.1	15.6	16.1	16.7	17.2	17.7	18.1	18.5	16.9	19.5	19.5	19.8	20.1	20.4
	m	3	4	1 0	5	•	7	7	æ	80	8	٠.	6	•	•	0
	N	, M	4	5	3	. 9	7	7		8	•	٠.	0	•		0
	•	3	4	4	3	. 9	·	7	7.	0	•	6	•	0	0	0
25	3		4	4	5	*	•	7	7	60	•	0	•	6		0
	11.8	12.9	13.9	14.8	15.5	16.2	16.8	17.3	17.8	18.3	18.7	19.1	19.4	19.7	20.0	20.3
	6-4	2	3	+	ĸ.	•	•	7	7	•	€	6	•	•	ô	•
	+	2	3	•	N.	•	•	7	7	60	90	6	6	•	ċ	0
-	7	2	P)	4	5	9	9	7	7	60	•	٠.	6	6	0	0
	-1	2	2	4	rU.	•	•	7	7.	•	•	6	6	0	•	0
31	11.4	12.7	13.7	14.5	15.4	16.1	16.7	17.3	17.8	18.2	18.6	19.0	19.4	19.7	20.0	20.3
	+	2	3.	4	1 0	9	9	1	7.	60	•	٥.	o.	6	0	0

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.78

ARPOVER								E								
FACTOR [K1]	0.5	0.6	0.7	0 . 0	•	. 0	1 wel	12	1.3	 	1.5	1.6	1.7	1 4		2
1 00 0						•	9.0			00						0 6
는 다 다 다 다 O 다 CV PV 수						00000	00000	00000	00000		23.7	00 00 00 00 00 00 00 00 00 00 00 00 00	0000 0000 000	0.0 0.23.7 21.8	0 28.2 21.7	0000 0000 1000 1000 1000 1000 1000 100
50 6 7 8 8 50 6 7 8 8	00000				0. 25.3 18.7	0. 20.3 18.3	22.0 19.6 17.8	200 200 200 200 200 200 200 200 200 200	222 202 1199 109 109 109 109 109	221 201 199 199 199 199	21.1 20.1 1.9.7 4.9.4	21.0 20.3 19.9 19.7	220 200 400 400 800 800	2000 2000 2000 2000 2000 2000	22222 20000 10000	21.2 21.0 20.0 20.0 7
	11111 12245 1366 1366 1366 1366 1366 1366 1366 136	14.7.2 13.6 13.6	48444 987444 98749	60.00 60.00 60.00 60.00	16.0 16.0 17.0 17.0 15.0	10000	17.71	17.0 17.8 17.7 17.7 17.6	4444 80888 80440	18.6 18.6 18.5 18.5	0 0 0 0 0 0 0 0 0 0	4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	19.7 19.7 19.6 19.6	20 20 10 10 10 10 10 10	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	00000 0000 0000 0000 0000 0000 0000
2020	12.1 11.9 11.8 11.7	13.2 12.9 12.9	44888 44888 40008	44444	7.00 7.00 7.00 7.00 7.00 7.00	4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	144.0 146.9 16.9	よきままさ ファファ 5.5.4.4.4	18.0 17.9 17.9	60 60 60 60 4 4 4 4 4	441414 60 60 60 60 60 60 60 60	1100.0 1100.0 100.	19.6 19.5 19.5 19.5	1199.9 1199.9 199.8	00000	2000 2000 2000 4444
0 10 0	11.6	12.8 12.7 12.7	13.0 13.0 13.0	14.7	# # # # #	16.2 16.2	16.8 16.8 16.8	4.7.4 4.7.4 4.7.4	17.9 17.9 17.9	8 8 8 8 4 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	23 44 44 80 80 80 80	19.2 19.1 19.1	19.5 19.5 19.5	19.8 19.8 19.8	2002	0.00

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK BENSITY #0.79

0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 0.5 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	A N N N N N N N N N N N N N N N N N N N								9E					!			
10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	K11	0.5	0		60	0	0	1.1	1.2	H . U	4.4	Α. Ε.	1.6	1.7	60	1.9	2.0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	60	0 1		•	.0	0		0	0.			0					0
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	Φ								_						•		•
1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0																	•
2 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.																0	•
3 0. </th <td></td> <td>0</td> <td>0</td> <td>0</td> <td>6</td> <td>9</td>													0	0	0	6	9
4 0. 0. 0. 0. 0. 31.5 24.5 5 0. 0. 0. 0. 23.5 21.2 23.5 22.0 21.2 6 0. 0. 0. 0. 20. 20. 7 0. 0. 0. 20.											0	0	38.6	26.0	24.1	23.3	22.9
0. 0. 0. 0. 0. 0. 0. 0. 23.5 21.2 23.8 22.0 21.2 0. 0. 0. 0. 0. 23.5 21.2 20.6 20.4 20.0 0. 0. 0. 0. 0. 20.0 20.8 19.7 19.5 21.0 20.6 20.4 20.0 0. 0. 0. 0. 22.4 19.1 10.6 10.6 10.6 10.6 19.0 19.3 19.7 19.0 0. 0. 0. 19.8 17.7 17.5 17.7 10.0 10.0 19.3 19.7 19.0 19.0 17.7 17.5 17.7 10.0 10.0 19.3 10.0 19.3 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10				-							• •	+	2	2	2	-	+
0. 0. 0. 0. 0. 0. 0. 0. 23.5 21.2 20.6 20.4 20.0 0. 0. 0. 0. 0. 30.0 20.8 19.7 19.5 19.5 19.7 19.7 19.0 0. 0. 0. 22.4 19.1 18.6 18.6 18.8 19.0 19.3 19.0 0. 0. 0. 19.8 17.7 17.5 17.7 18.0 18.3 18.7 19.0 19.3 19.0 19.8 17.7 17.5 17.7 18.0 18.3 18.7 19.0 19.3 13.9 14.3 14.9 15.9 16.4 16.9 17.4 17.9 18.4 18.8 19.1 12.5 13.5 14.9 15.5 16.2 16.8 17.3 17.8 18.5 18.7 19.0 19.0 12.5 13.5 14.4 15.2 15.9 16.5 17.1 17.7 18.1 18.5 19.0 19.0 12.5 13.5 14.4 15.2 15.9 16.5 17.1 17.7 18.1 18.5 19.0 17.9 13.0 14.0 14.9 15.7 16.4 17.0 17.5 18.1 18.5 18.7 18.1 11.8 13.0 14.0 14.9 15.7 16.4 17.0 17.5 18.0 18.5 18.1 11.7 12.9 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18.1 11.6 12.9 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18.1 11.6 12.9 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18.1 11.6 12.8 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18.1									7	P)	8	-1	1	+	-	-	-
0. 0. 0. 0. 0. 22.4 19.1 18.6 18.6 18.6 19.7 19.5 19.7 19. 0. 0. 0. 0. 22.4 19.1 18.6 18.6 18.6 19.0 19.3 19. 0. 0. 0. 19.8 17.7 17.5 17.7 18.0 18.3 18.7 19.0 19. 15.6 15.2 15.4 15.9 16.4 16.9 17.4 17.9 18.4 18.8 19. 13.0 13.8 14.9 15.5 16.2 16.8 17.3 17.4 17.9 18.4 18.8 19. 12.5 13.5 14.4 15.2 16.2 16.8 17.3 17.7 18.1 18.5 18.7 19. 12.5 13.5 14.4 15.2 15.9 16.5 17.1 17.7 18.1 18.6 19. 12.5 13.5 14.4 15.2 15.9 16.5 17.1 17.7 18.1 18.5 18. 18.5 18. 11.9 13.0 14.0 14.9 15.7 16.4 17.0 17.6 18.1 18.5 18. 11.8 13.0 14.0 14.9 15.7 16.4 17.0 17.5 18.0 18.5 18. 11.7 12.9 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18. 11.6 12.9 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18. 11.6 12.8 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18. 11.6 12.8 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18.						0		3	-	0	0	0	0	0	c	0	+
0. 0. 19.0 17.7 17.5 17.7 18.0 18.0 19.0 19.3 19.0 19.0 19.3 19.0 10. 10. 19.0 17.7 17.5 17.7 18.0 18.3 18.7 19.0 19.0 19.0 15.2 15.4 15.9 15.4 16.9 17.4 17.9 18.4 18.8 19.0 13.0 14.3 14.9 15.5 16.2 16.8 17.2 17.7 18.1 18.5 18.9 19.0 13.0 13.8 14.6 15.3 16.0 16.6 17.2 17.7 18.2 18.6 19.0 12.5 13.3 14.2 15.1 15.9 16.5 17.1 17.7 18.1 18.5 18.6 19.0 12.0 13.1 14.1 15.0 15.7 16.4 17.0 17.6 18.1 18.5 18.5 18.5 18.5 18.5 18.5 18.5					0			•	6	6	6	6	0		0	20.7	
0. 19.8 17.7 17.5 17.7 18.1 18.3 18.7 19.0 19. 16.6 15.2 15.4 15.9 15.4 16.9 17.4 17.9 18.4 18.8 19. 13.9 14.3 14.9 15.5 16.2 16.8 17.3 17.8 18.3 18.7 19. 12.5 13.5 14.4 15.2 15.9 16.5 17.2 17.7 18.2 18.6 19. 12.5 13.5 14.4 15.2 15.9 16.5 17.1 17.7 18.2 18.6 19. 12.2 13.3 14.2 15.1 15.8 16.5 17.1 17.6 18.1 18.5 19. 12.0 13.1 14.1 15.0 15.7 16.4 17.0 17.6 18.1 18.5 18. 11.9 13.0 14.0 14.9 15.7 16.4 17.0 17.5 18.1 18.5 18. 11.6 12.9 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18. 11.6 12.9 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18.				0	è	6	•	•	80	•	•	•	•	0		0	0
16.6 15.2 15.4 15.9 16.4 16.9 17.4 17.9 18.5 18.9 19. 13.9 14.3 14.9 15.5 16.2 16.8 17.3 17.8 18.5 18.7 19. 13.0 13.8 14.6 15.3 16.0 16.6 17.2 17.7 18.2 18.7 19. 12.5 13.5 14.4 15.2 15.9 16.5 17.1 17.7 18.2 18.6 19. 12.5 13.5 14.4 15.2 15.9 16.5 17.1 17.7 18.1 18.6 19. 12.0 13.1 14.1 15.8 16.5 17.1 17.7 18.1 18.5 19. 11.9 13.0 14.0 15.7 16.4 17.0 17.5 18.1 18.5 18.1 11.8 13.0 14.0 15.7 16.4 17.0 17.5 18.0 18.5 18.1 11.7 12.9 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18.1 11.6 12.9 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18.1 11.6 12.8 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18.				0	7.	7.	7.	8	œ	80	6	6	19.7			0	20.7
15.6 15.2 15.4 15.9 15.4 16.9 17.4 17.9 18.4 18.8 19. 13.9 14.3 14.9 15.5 16.2 16.8 17.3 17.8 18.3 18.7 19. 13.0 13.8 14.6 15.3 16.0 16.6 17.2 17.7 18.2 18.7 19. 12.5 13.5 14.4 15.2 15.9 16.5 17.1 17.7 18.2 18.6 19. 12.0 13.1 14.1 15.0 15.7 16.4 17.0 17.6 18.1 18.5 18. 11.9 13.0 14.0 14.9 15.7 16.4 17.0 17.6 18.1 18.5 18. 11.8 13.0 14.0 14.9 15.7 16.3 17.0 17.5 18.0 18.5 18. 11.7 12.9 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18. 11.6 12.9 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18. 11.6 12.8 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18.			G ()	•	•	•		7	80	80	80	•	6	0		9	0
13.9 14.3 14.9 15.5 16.2 16.8 17.3 17.8 18.3 18.7 19. 12.5 13.5 14.4 15.2 15.9 16.6 17.2 17.7 18.2 13.6 19. 12.5 13.5 14.4 15.2 15.9 16.5 17.1 17.7 18.1 18.6 19. 12.0 13.1 14.1 15.0 15.7 16.4 17.0 17.6 18.1 18.5 18. 11.9 13.0 14.0 14.9 15.7 16.4 17.0 17.5 18.1 18.5 18. 11.8 13.0 14.0 14.9 15.7 16.3 17.0 17.5 18.0 18.5 18. 11.6 12.9 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18. 11.6 12.8 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18.		9	5	8	5	8	•	7.	7.	00	8	6	19.5	19.8	20.1	21 4	
3 13.0 13.8 14.6 15.2 15.9 16.5 17.1 17.7 18.2 18.6 19. 12.5 13.5 14.4 15.2 15.9 16.5 17.1 17.7 18.1 18.6 19. 5 12.0 13.1 14.2 15.1 15.8 16.5 17.1 17.6 18.1 18.5 19. 7 11.9 13.0 14.0 14.9 15.7 16.4 17.0 17.5 18.1 18.5 18.1 11.8 13.0 14.0 14.9 15.7 16.4 17.0 17.5 18.0 18.5 18.9 11.7 12.9 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18.0 11.6 12.9 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18.1 11.6 12.8 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18.0 11.6 12.8 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18.0 18.5 18.0 18.6 18.6 18.8 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18.0 18.5 18.0 18.5 18.0 18.6 18.6 18.8 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18.0 18.5 18.0 18.6 18.6 18.8 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18.5 18.5 18.5 18.5 18.5 18.5 18.5		3	4	*	5	•	9		7	8		•	6	0.	0	0	9
12.5 13.5 14.4 15.2 15.9 16.5 17.1 17.7 18.1 18.6 19. 12.2 13.3 14.2 15.1 15.8 16.5 17.1 17.6 18.1 18.5 19. 12.0 13.1 14.1 15.0 15.7 16.4 17.0 17.6 18.1 18.5 18. 11.9 13.0 14.0 14.9 15.7 16.4 17.0 17.5 18.1 18.5 18. 11.8 13.0 14.0 14.9 15.7 16.3 17.0 17.5 18.0 18.5 18. 11.6 12.9 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18.		3	3	4	5	•	•	7	7	8	æ	•	•	0,	0		
5 12.2 13.3 14.2 15.1 15.8 16.5 17.1 17.6 18.1 18.5 19. 6 12.0 13.1 14.1 15.0 15.7 16.4 17.0 17.6 18.1 18.5 18. 7 11.9 13.0 14.0 14.9 15.7 16.4 17.0 17.5 18.1 18.5 18. 8 11.8 13.0 14.0 14.9 15.7 16.3 17.0 17.5 18.0 18.5 18. 9 11.7 12.9 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18. 11.6 12.9 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18.		2	10	4	5		9	7	7.	•	60	0	•	6	•	0	0
12.0 13.1 14.1 15.0 15.7 16.4 17.0 17.6 18.1 18.5 18.7 11.9 13.0 14.0 14.9 15.7 16.4 17.0 17.5 18.1 18.5 18.9 11.8 13.0 14.0 14.9 15.7 16.3 17.0 17.5 18.0 18.5 18.9 11.7 12.9 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18.0 11.6 12.9 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18.1 11.6 12.8 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18.1		2	2	-	5	5	•		7	œ	80	•	6	0	0	0	0
11.9 13.0 14.0 14.9 15.7 16.4 17.0 17.5 18.1 18.5 18. 11.8 13.0 14.0 14.9 15.7 16.3 17.0 17.5 18.0 18.5 18.9 11.7 12.9 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18.0 11.6 12.9 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18.1 11.6 12.8 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18.1		2	3	4	5	5	•		7	00	8	•	19.3	19.7	20.0	20.3	20.6
8 11.8 13.0 14.0 14.9 15.7 16.3 17.0 17.5 18.0 18.5 18.9 11.7 12.9 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18.0 11.6 12.9 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18.1 11.6 12.8 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18.1		+	3	4	+	5			7	8	80	•	•	•	0	0	
9 11.7 12.9 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18. 0 11.6 12.9 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18. 1 11.6 12.8 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18.		+	3	4	4	٠. س	•	7	7.	ස	8	•	6	0			
11.6 12.9 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18. 1 11.6 12.8 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18.		+	3	6	4	Š.	•	•	7	60	œ	ି ସେ	·	φ.	0	•	0.
11.6 12.8 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18.			2	(A	4	5	•	•	7	00	8	•	6	0	0	6	0
		-	3	3	4	S.	•	9	7.	00	60	•	19.3	19.6	20.0	20.3	20.5
2 11.6 12.8 13.9 14.8 15.6 16.3 16.9 17.5 18.0 18.5 18.	-	- 4	2	2	4	1 0	•	•	7	œ		•	6	0	0	•	0



MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.80

THREE-HARNESS WEAVE FABRICS

	1				1			BET	i	1		1			Ł	1	i
X .	0.5	9.0	0.7	0.0		1.0	₩ · ₩	1.2	1.3	₩.		1.6		60 1	4.9	2.0	
0 0	1	8 1 •	! ! •	1		1 .	•	0	•	0				•	0		1
				0.		0						•					
															•	0	
														0	-	•	
			0				0	0	0	0	0	0	27.0	24.6	23.7	•	
T	•	C	Ö	•									6	2	2	ż	
					0		0	0	4	2	1	v-4	wd	+	-4	4-1	
		0	0	0		0	24.7	21.6	20.8	20.6	20.6	26.6	20.8	20.9	21,1	21.3	
				0		-	0	•	6	6	0	0	•	c >	0	+	
			0	4	0		8	8	6	6	6	0		0	6	+	
40	0.		21.0	•		7	•	80	6	6	•	6	0	0	0	0	
20		0	•	9	7		7.	90	60	6	6	•	0	0	0	0	
	7.	15.5	15.6	16.1		17.1	17.6	18.0	18.5	18.9	19.3	19.6	19.9	20.2	29 , 5	20.8	
			5	5	•	•		7	8	8	•	6	6	ç,	0	0	
	٠ د	3	4	Š	0		~	7	80	о О	•	6	6	0	0	0	
24	8	3	•	5		9	7.	7.	60	40	6	6	ů.	0	0	0	
	2	100	*	5	N.	•		7	60	œ	0	6	0	0	0	0	
	8	3	4	S.	5	•	7	7	80	ф Ф	•	о .	6		0	0	
	ċ	3	4	5	5	•	7	7	8	&	6	6	6	0	0	0	
	11.9	13.0	14.1	15.0	15.8	16.5	17.1	17.6	18.1	18.5	19.0	19.4	19.8	20.1	20.4	20.7	
62		m	4		5	•	7.	7	œ	80	•	•	6	0	0	0	
	+	~	*	4	5	.0	7.	7.	60	•	6	٥.	0	0	0	0	
	11.7	12.9	14.0	14.9	S	16.4	17.0	17.6	18.1	18.6	0	19.4	19.8	0	20.4		
32	+	è	3	4	•	9	•	•	•	60	•	·	6	•	0	•	

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.81

THREE-HARNESS WEAVE FABRICS

								867				ı	1	((
A T	0.5	0.6	0.7	0.8	-	1.0	1.1	1.2				1.6	1.7		6.4	2.0	
60		0	0	. 0			 c	0.	0	0	0			0	•		
ው													•				
																•	
															6	0	
													0	0	÷	7	
			0.	ວໍ		.	0		0		9		28.2	25.1	24.0	•	
	0			0								•	2	2	N	N	
	0	0			C			•	ľ.	2	N	+	•	w-1	-	÷	
						0	9	5	+	0	0	0	+	ř	**	+	
				0	•	22.1	20.4	20.0	19.9	20.0		20.4	20.6	20.8		21.2	
			8		0	6	6	6	0	6	0	0	•	0	•	÷	
	0	0.		8		80	60	60	•	ò		6	0	0	0	·	
20		0	7	•	7.		60	0	60	6	•	0	0	0	0	-	
	0	15.8	15.8	16.2	16.7	17.2	17.7	18.2	18.6	19.0	19.4	19.7	20.1	20.4	20.7	20.9	
	4	4	5	5	•		7.	80	8	60	6	·	0	0	0	0	
	3	4	+	5	9	•	7	æ	8	8	6	0	0		6	0	
	12.8	•	•	N.	•	•	7		60	60	0	0	0	0	•	0	
	2	30	4	3	9	•	*	7	00	900	•	0	0	6	0	0	
	2	M	4	5	•	è	7	7.	ъ.	6 0	0.	°	ď	0.	0	0	
	è	, M	4	5	Ŋ	9	7	~	8	ъ	•	•	·	0			
	2	3	14.2	15.1	15.9	16.6	17.2	17.8	18.3	18.7	19.5	19.5	19.9	20.5	20.5	20.8	
62	11.9		•	r.	5	6.	7.	r-	60	00	•	٠ ټ	0	0	0	0	
-	-4	1	*	5	5	é	7.	7	e	80	0	0	0	ċ	0	0	
	-	M)	4	5	D.	6		1	a)		0,	o.	O	0	0	0	
i Ci	11.7	13.0	14.0	15.0	15.8	16.5	17.1	17.7	18.2	18.7	6-4 C:	19.5	19.9	20.2	20.5	20.8	



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.82

								80		10	- 1				•	i
KA10	0	t	0.7	0	0.0	1.0	ਜ ਜ	1.2	P)	* i	7	1.6		₩ ₩	0 1	2.0
60	1			0		0	0,	0	. 0	•	0		0	•	•	0.
3	0	•	•	•					0.					0		•
			(3)												Ö	•
			0													0
													6	0	•	œ 1
	• •	0	0		0	0	0	j.	0	e.	0		29.7	25.7	4.4	80.00
4 4				0		•							٠ د	·	2	N
							•	0	•	3	2		-	-	-	-
	0	0	0	0	0.		29.0	22.6	21.9	21.1	21.0	21.0	21.1	21.3	21.4	21.6
						2	•	6	0	0	0	0	0	٠ •	• •	-
					0	0	6	6	•	•	9	0	0	0		$\dot{}$
10					•		•	60	•	6	•	0	0	0	•	• •
20		ы.	7	7	7.	7.	8	60	90	0	•	0	0	0		-
	2	16.2	16.0	16.4	16.9	17.4	17.9	18.3	18.7	19.1	19.5	19.9	20.5	20.5	20.8	21.1
	4	4	5	9	•			8	80	6	•	•	0	0	•	٠,
		4	80	5	9		7	8	8	6	•	6	0	0	•	÷
24	2	2	4	5	•	•	7.	9	60	60	•	0	0	0	0	÷
	2	*	*	S	•	•		80	60	60	0	6	0	0	6	-
	2	30	4	5		•			60	60	6	6	0	0	•	-1
	ς.	3	4	5	•	•	7	7.	8	œ	0	6	0	0	0	0
	12.0	13.2	14.3	15.2	16.0	16.7	17.3	17.9	18.4	18.8	19.3	19.7	20.0	20.3	20.7	20.9
50	•	m	4	IV.	5	•	7.		60	60	0	•	0	0	•	0
	**	P)	4	5	41	•	7	7	60	60	6	0	0	0		0
31	11.8	13.1	14.1	15.1	15.9	16.6	17.2	17.8	18.3	18.8	19.2	19.6	20.0	20.3	20.6	20.9
	7	3	+	υ.	•	. 9		7	80	8	6	•	0	0	0	•

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.83

THREE-HARNESS WEAVE FABRICS

		0.	• •	29.7	22. 22. 21. 21.		
	-	0 . 0		24.8	2 2 7 7 7	a a b b c c c	
		1 0		7,000	2 0 4 4 6		
	1.7	0	_	32.1	2 2400	4 4 8 8 9 9	2.00.00
	; -	0	-		2022	40000	00000 000 00000 000 000000 000
	-	0.0	-		M 40 0		44444 44
	•	0 0	-	0000	2001 2001 2004 2004	40044	00000 000
4	•	000			26.1 21.8 20.4 19.7	0.087.0	ស្តេសស្តេស ស្តេ ស្រុសស្រុស ស្រុស
96	1	000	_		20.02 19.5 19.5		88.0 88.0 7.9
	-	00		000	35.9 21.2 19.5	18.3 18.0 17.8 17.7	UUVUV UVV UU444 444
		00			24.0 14.7	17.0 17.0 17.0	00.00 00.00
	0	0.0			60 00 00 00 00 00 00 00	17.0 116.7 16.7 16.3	00000 000 0000 000
	0.8		• • •		40000	47.4 46.6 45.8 45.8	あちらるち らちょうちょうこう
1 1 1			000	• • • •	00000	2 2 2 2 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	V 10 4 4 W W W W
			000			4 0 10 4 4 8 0 0 4 0	ти ч т т т т т т т т т т т т т т т т т т
	0.5			000	00000	3430	12.7 12.4 12.3 12.0 12.0 12.0 11.9 11.9
CAR.	×1.	50 sa	0 H 0		2.9 × 8 9		



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARD COVER FACTOR AND BETA

TE GE ALLENDED AT & COTA

A R P O V F R								← W									
FACTOR (K1)	0.5	9.6	0.7	60.0	0.9	1.0		; -				-	1.7	1 00 1	1.9	, 0	, ,
000	1	1	i	1		00	001		000		1			000			
														0 1	C) W	स्यं य	
0 4					90						30.7	25.4	24.0	23.4	23.1	22.9	
_								0	0	4	2	2	2	2	2	c.	
						0	•	3	2		-	• •	-	ب	-	+	
	0		ċ	0	0	25.4	21.6	20.8	20.6	20.6	20.7	20.9	21.1	21.3	21.5	21.7	
					ب	0	•	6	6	0	0	0	0	-4	٠ •	7	
19						©	60	6	6	6	0	0	0	0		÷	
			60	7.	7	60	8	00	6	0	0	0	0	0	•	+4	
		7	•	ý		7	8	00	6	6	6	0	0	0	<u>.</u> .	:	
	15.7	15.3	15.7	16.3	16.8	17.4	17.9	18.4	18.9	19.3	19.7	20.1	20.4	20.7	21.0	21,3	
	0	4	5	ľ.	·			60	80	0	•			Ċ	ر چو	;	
4	~	4	r.	ŗ.	9	•	7.	8	ස •	•	0			O	÷	-	
_	2	M	4	ď.	6	7	-	80	œ	•	0	0	0	0	0	-	
	15.5	13.6	14.6	15.5	16.3	17.0	17.6	18.1	18.7	19.1	19.5	19.9	20.3	20.6	20.3	21.2	
	۶.	M	4	5	•	·	7	80	a 0	·	6	6	0	0	6	.	
	2	3	4	J.	9	•	۲.	8	œ	6	6	٥.	0		C	÷	
56	2	M	4	5	•	ç	7	60	œ	φ.	•	6	0	0	0		
	2	1 0	4	5	8	8	~	90	60	0	0	0	0	S	0	_	
31	12.0	13.3	14.3	15.3	16.1	16.8	17.5	18.0	18.5	19.0	10.5	19.3	29.2	20.6	20.9	21.2	
	c.	~	•	10	÷	ċ		a 0	or.	•		r		c.	<u>.</u>	, +-1	

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.85

THREE . HARNESS WEAVE FABRICS

	1	ı		1	(8 F				(í		1
X X	0.5	ı.		60	6.0	1.0	4.1	1.2	•		·•4·	4	1.7	00 با	4.9	
1 60		0		90	•	6 •			0.	0	0					
Φ			9.				•									•
											0.	0.	0			•
																•
														6	•	3
				0		0.	0	0	0	0	0	0		28.0	25.7	•
4		0	0	•	0						34.4		4	3	.	, ,
					0				•	80		~	2	2	N	2
							0	4	ò	+	-	~ √	-	+	-1	2
						7	2	¥-i	0	0	60	-	-	-	-	.
		0	0	•	2	20.4	19.9	19.9	20.0	20.5	20.5	20.7	21.0	21.2	21.4	21.7
	0	0.	0			60	6	6	0	0	0	0	٠ ت	.	-	+
20			•0	7	7.	®	•	60	-		0	0	0	+	-4	*4
	0		16.7	16.9	17.3	17.8	18.3	18.7			19.9	20.3	20.6	20.9	21.2	21.5
	9	5	e.		7	7	œ	60	6	6	•	0	0	0	-	+
	4	4	'n.	9	ċ			Ø	60	•	•		0		• ল	+
	13.4	•	3	10	•			œ	€C	6	O	0	0	~. ©	- 4	, 4-1
	~	1	4	5			7.	80	00	6	•			0	-	-
	2	3	4	5	, •	7.		6	8	6	•	0	0		-4	.
	2	3	4	5	9	4	7.	œ	60	6	6	0	0	0	-1	+
		13.5	14.6	15.5	16.3	17.0	17.6	18.2	18.7	19.5	19.6	20.0	20.4	20.7	21.0	21.3
		ė	4	5	•	7	7	80	00	6	6	0	0	0	• •	*
	~	3	4	5	9	•		00	٠.	1,	0	0	0	0	grd.	
31	12.1	13.3	14.4	15.4	16.2	16.9	17.6	18.2		2	19.6	20.0	20.4	20.7	21.0	
	Ċ	3	4	5	•	9		œ	œ	0	•	0	ċ	O	-1	7



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.86

i			90769	48020		~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	444
	6		909	0400K	4 12 12 12 12 12 12 12 12 12 12 12 12 12	20004	ままさ
	get (00	20000	22222	# # # # # # 0 0 0 0 0	22222	222
• (-	, ,		00000 04444 000440	40000	00000	20.08 20.08
	1.7	000	00 00 00 00 00 00 00 00 00 00 00 00 00	00000 00000 00000 00000	2000 2000 2000 2000 2000	00000 0000 0000 0000 0000	20.5 20.5 20.5
	4.6	00	8 90000.	22223 2222 2022 2023 2034 2034 2034 2034	00000 00000 00000	20000	20.1 20.1 20.1
	1.5		6.000	20000000000000000000000000000000000000	20044 20040 20040	119.8 19.8 19.7 19.7	19.7
1	₩			8 7 0 4 0	91191 91091 91091 91091	44666 44666	119. 19. 19.
	1 t-1			23.0 201.0 19.7	60.00 60.00 60.00	44444 88888 9998	13.8 13.8
BET	 			0000 0000 0000 0000	4 4 4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6	4 4 5 5 5 5	18.3 18.3
	 			0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	44444 88887 74709	117.9 17.8 17.7 17.7	17.7 17.7 17.7
	1.0			122.2 193.2	14 14 14 17 19 19 19 19	2000 2000 2000 2000	17.0 17.0 17.0
	0 . 0	00		000040	807789		166.3 166.3 166.3
	0 . 0				24444 666748 640740	44 45 45 45 45 45 45 45 45 45 45 45 45 4	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~
	0.7				4 4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	24444 08773	444
	9.0		00000		4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	13.6 13.6 13.6	E 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
	0.5	000			0044 0044 046		12.2 12.2 12.1
0. W +	A Z	1 1 1 00 O		55 45 45 45 45 45 45 45 45 45 45 45 45 4		2000	

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.87

C							1	96	•	•		1		•	•	1
K11	0.5	9.0	9.7	8	6.0	4	1.1	1.2	1.3		2.5	1.6		1.8		0
, co	6				•						6			6		
•																
					0											
		-														
															.	0
13	0	0	•	0	· •	6	°	•				0	٠ ا ه	30.5	26.8	•
_														•	•	?
								0	ပ	•	*	3	~	C1	2.	2
_							0		, M	2	2	8	~	5	2	'n
-						•	5	-	**	+	-	-	4	-	-	è
	9.	0	0	0	25.8	21,2	20.5	20.3	20.4	20.6	20.8	21.0	21.3	21.5	21.7	22.0
19					•	0	0	•	0	0	•	0	• •	+	÷1	-4
20			0	80	•	80	6 0	6	•	0	0	0	0		-	÷
	0	•	17.3	17.3	17.7	18.1	18.5	19.0	-	19.8	20.5	20.5	20.8	21.2	21.4	21.7
	7		\$	•	7		®	60	6	•	0	0		+	-	
	4	Š	3		7		•	*	•	•	•	0	0	-	-	+4
	-	•	N	•	•		80	60	6	0	•	0	0	-	=1	-1
25	3	4		K.	•		•		6	0	0	0	0	+	•	·
	12.9	14.0	14.9	15.8	16.6	17.3	17.9	18.5	19.0	19.5	19.9	20.3	20.7	21.0	21.3	21.6
	2	3		5	•		7	8	6	•	•	0	0	+4		-
	2	F	•	5	9		-	8	æ	•	0	0	0	-	-	-
	2	M	4	5	Ġ			•	•	0	0	0	0	H	-	-1
	Š	2	4	5	9	6	7			6	•	0	0	-	-	+
	12.2	13.5	14.6	15.5	16.4	17,1	17.8	18.4	18.9	19.4	19.8	20.2	20.6	20.9	21.3	21.6
e e	8	5	4	5	•	7	7.	60	60	6	•	0	0	0	-1	



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.88

		• •	0000		0 0 0 0 p	27.7.7	, r, r
•	6		4.1	04101	60 R R R	4444	444
,		i	NN	できるのの	42222	22222	222
	-	00	00 00 00 00 00 00 00 00 00 00 00 00 00	2222 2222 2222 2426 2426	21.3 21.3 21.2 21.2	21.1 21.1 21.1 21.1	24.1 21.1 21.1
	1.7	60	00.00.00.	223.2	21.1 20.0 20.9 20.9	20.08 20.08 20.7	20.7 20.7 20.7
	-			227.23 221.52 201.52	2000 2000 2000 2000 2000 3000 3000 3000	00000 44444	4.002
	.5			888888 48408 64408	000000 00000 40011		20.0 19.9
	1 •			8.000 8.000 8.000	119.0 199.0 199.7	9999	0 0 0 0 0 0 0 0 0 0
	. 10	00	00000	2222 2223 234 236 236	00000 00000 00000	0 0 0 0 0 0 0 0 0 0	19.0
E E				0000 0000 0000 0000	4 4 0 0 0 k	44444 88888 68888 6888 6888 6888 6888 6	#### #### ####
	1.1	000		0. 23.9 20.7	19 19 19 19 19 19 19 19	11811 11811 1790	17.9 17.9
				0. 0. 21.7 19.6	18.7 18.7 17.9 17.7	7 4 5 5 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7	17.2
	0			00000	81444 81444 81744	8 7 9 9 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	116.3 16.3 16.3
				2000	2444 4664 6664 6664 6664 6664 6664 6664	44444 4777 4769 4	15.7 15.6 15.6
	10	000				200444 00088	14.7
	9.0	000			19.7 15.3 15.6	44 B B B B B B B B B B B B B B B B B B	13.6 13.6
	0.5			00000		13.3 12.7 12.6	
0. 111	X C	000				2222 202 203 203 203 203 203 203 203 203	
				2.02			

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.89

2 4								96	1		. 1	1		. (
FK 10	0.5	9.0	0.7		0.0	4.0	+	1.2	ומו	•	1	 		1.8	5	
600			•	-	•		_			• •					00	
'대'라 러 러 커 O 러 (V P) 4				00000	00000	00000	60000	00000				00000 4	2000. 8000. 8000.	N W O O O	00004	
. # # # # # # 10	00000		60000	00000	37.55	4000 4000 4000	2004.40	00000	0 4 4 0 0 0 4 4 0 0 0 60 60	2022 2022 2022 2036 2036	20000 20000 20000 10000 10000	22. 22. 21. 21. 21. 1.	2222 2222 4.4.2 2.1.1 2.1.1	2022 2022 2022 2022 2020	2000 2000 2000 2000 2000	828 828 828 828 828 838 838 838 838 838
	00004 6000	0 4 6 4 6	22 22 24 26 26 26 26 26	10.7.7 17.7 16.6	118.0 17.3 17.0	9 1 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0.00 H H H H H H H H H H H H H H H H H H	199.19	44444 60000 00000	20011	00000 00000 04mm	20.0 20.7 20.7 20.6	221.1 221.1 201.0 20.0	22222 111111 24488	222 222 222 223 24.0 36.0 36.0 36.0 36.0 36.0 36.0 36.0 36	222.0 221.0 211.9
0 0 0 0 0 0 0 0 0	4467.00 4467.00	44433 4000 &	44444 80844 80006	44444 44666 4666	1166 1166 1166 1166 1166 1166 1166 116	44756 44756	\$ 40 60 F	8 7 7 9 9 9 9 9 9 9 9 9 9 9 9	80000 80000 80000	4444 99999 77779	2222	00000 0000 00000 00000	00000	22222	90000 9444 9444 9646 9646 9646 9646 9646	21.8 21.8 21.8 21.8
8 8 8 8 2 4 6	12.5	13.7 13.7 13.6	14.8 14.8 14.7	50 C C C C C C C C C C C C C C C C C C C	16.6 16.6 16.6	17.3 17.3	11 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	18.6 18.6	4.00	19.6 19.6	200	200.00	20.03	21.2 21.2 21.2	21.5	21.8 21.8



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.90

								9E ₹				•	! !	1 1	1	5 6 0	1
A N	0	9.0	6.7	0	. 0	1 🕶	1:1	1.2	1 1 1 1 1	4	5	1.6	1.7	ज्य ।	1.9	2.0	
1 00 0		•	6		. 0		• •	•	0	0						00	
>			-														
-															6	0	
-						0	0.	0		0	0	0		43.6		•	
4	0	0	6	9.	0								9		4	•	
					0			•	0	-	5	4	77	2	P)	3	
							0	ċ	S.	₩	2	2	2	2	2	2	
						0	8 0	o	2	-	-	7	2	2	~	3	
		0	0	0		•	21.3	21.0	20.9	21.1	21.2	21.5	21.7	21.9	25.5	22.4	
19	0		0	29.1	21.0	0	0	0	0	0	•	7	-	v4	2	5	
		0	4	0	•	•	•	•	0	0	6		-	•	•	2	
		3		7.	8	60	•	6	٠. ص			0	+	 +1	-	ò	
	4	. 9		7		8	©	6	•	0	•	0	+	٠ ټ	+	5	
	5.	15.6	16.1	16.7	17.4	18.0	18.5	19.0	19.5	20.0	20.4	20.8	21.1	21.4	21.7	22.0	
	14.2	•	æ.	9			60	•	•	6	9	0	÷	vd	÷	N.	
25	3	-	80	•	7		•	60	0,	•		0	-	-	-	è	
		14.3	19.3	16.1	16.9	•	18.3	18.8	19.5	19.8	20.3	20.7	21.0	21.4	21.7	22.0	
	0	4	5	•	•	7	8	60	•	6		0	+	+	-	3	
	2	4	5	•	9		80	80	•	6	0	0	.	+	-	;	
		5	5	'n	9	-	60	æ,	o.	•		0	•	1,	7	·	
	2	3	*	r.	*0	7	60	60	6	•		0	÷	+	# 1	4-1	
31	12.5	13.8	14.9	15.8	16.7	17.4	18.1	18.7	19.5	19.7	20.5	20.6	21.0	21.3	21.6	21.9	
	8	, (M	4	M'	•	7.	60	80	6	•	6		, ,	+	-		

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.91

COARP COVER FACTOR	0	. 0		1 •	. 0	10	1 4	9ET	-	1 4	1 91	. 0	! +		. 6		•
) () () () () () () () () () (0.	1 6	6		0	1 6		: .	. 0	0	-	0	0	-		0.0	•
0.05								0.				•					
																•	
																•	
															•	•	
			0				0	0		•		0	0 1	01	29.9		
*	0						D								4	4	
									0	10	•	4	4	3	3	1	
							•	0	F	3	8	8	2	2	0	'n	
						0	7	3	2	3	2	2	2	2	2	ċ	
				0	0.	•	21.7	21.2	21.1	21.2	•		21.8	8	22.3	22.5	
13	0.		0	0		20.4	0		0	0	-1	-4	<u>.</u>		2	2	
				0	•	_	•	6	0	•	0	-	·	+	2	Ś	
		, vo	•	8	æ	6 0	6	6	•	0	0	+	÷-4	•	ė	5	
	0	17.3	17.0	17.3	17.8	•	18.8	19.3	19.8	0	20.6	20.9	21.3	21.6	21.9	22.2	
	•	ıv.	•	•	7	•	69	6	6	0	<u>.</u>	0	+	**	+	ċ	
	14.4	•	M	•	7	7	•	6	6	•	0	0	7	-	+1	÷	
25	3	4	8	9	7	7	•	6	6	0	0	0	+		•	2	
	3	4	ĸ.	•	7	7	6 0	8	6	6	0	0		-	+	2	
	M	4	.	•	ò	7	€.	60	6	6	0		7	•	-	۲.	
	12.9	14.1	15.1	16.1	16.9	17.6	18.3	18.9	19.4	19.9	20.3	20.7	2: .1	21.5	21.8	22.1	
	2	4	S	•	•		• •	٠ 20	•	•	ô		. 1	-	-1	8	
	C)	100		•			a	80	6	6	62	0	-	•-4	-	2	
31	12.6	13.9	15.0	15.9	16.8	17.5	18.2	18.8	19.3	19.8	20.3	20.7	21.1	21.4	21.7	22.0	
	8	P)	₹	3	9	7.	60	c	•	6	0	-	+	-	***	<u>ن</u>	



MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =0.92

THREE-HARNESS WEAVE FABRICS

a w F		5		•))))	•	•	B .			•	1				
[X 1]		• 1	6.7	0.8	0	1.0	#.1	1.2	10	+ 1	1.5	+ !		1.3		-
60 0	00					00		00				00		00	60	• •
9 4 8 5 4 0 4 8 5 4			00000	00000		00000	00000		00000				2000. 2000.	26.2	24. 24. 25.	0 0 0 7 7 8 8
ਨ ਨਿ ਨ ਜਿ ਦੀ ਦੀ ਦੀ ਦੀ			00000		0. 0. 0. 52.1	0.00.00.00.00.00.00.00.00.00.00.00.00.0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	22.7 22.6 21.3 20.7	0 4 4 4 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 5 0 0 0 0 4 6 6 0	22.53 22.23 21.28 31.88	4 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	22223 22223 2222 2222 2222 2222 2222 2	8 3 7 7 8 8 8 9 7 7 8 8 9 9 7 7 4 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	223.7 223.2 22.7 22.7 3
04224 04224	00 00 00 00 00 00 00 00 00 00 00 00 00	0. 17.7 16.0	0.444	0.4444 0.00 4.470 0.00 0.00	0 8 8 0 7 7 8 8 0 9 4	44444 9889 8989 0000	######################################	0.000 0.000 0.000 0.000	20.3 20.4 19.9 19.8	00000000000000000000000000000000000000	20000 20000 20000	211.0 211.0 21.0 1.0	0.0000 0.11000 0.11000 0.11000 0.11000	21.9 21.7 21.7 21.7	00000 00000 00000	22222 2222 448 448 523 533 544 548 548 548 548 548 548 548 548 548
2020 2000 2000	44444 88888 9488	44444 666664	###### ####### 	4 4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	17.2 17.1 17.0 16.9	17.9 17.8 17.7 17.7	1111111 80888 80888	4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	2000	00000 0000 0000 0000 0000	00000000000000000000000000000000000000	21.22 21.22 21.23 21.23	00000 11111 2000 0000	800000 4444 99999	22.52.5
30 32 32	12.7 12.6 12.6	14.0 13.9	13.0	16.1 16.0 16.0	16.9 16.9 16.8	17.6 17.6 17.6	13.3 18.3 18.3	1 8 1 8 9 9	2.61 4.61 4.61	20.0 19.9	2002	20.8 20.8 8.8	21.2 21.2 21.2	24.46	21.9 21.9 21.9	22.2

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.93

-								8E1			,			,	(
X		9.0	6.7	0	0	4.0	• •	1.2	₩ 1	***		1.6	1.7	60	6.4	
60			. 0		! • •	0.			0				0.	. 0	0	0.
0		0.	•		0.	•										
						-										
						-										•
-															0	0
## ·		0		0		•		. 0		•				•	32.7	28.4
-						-								0		'n
	-								0	0	7.	5	*	4	*	3
	-					0		0	7	4		m	3	3	6.5	۲)
	-					0	0	+	6,	2	2	2	0	0	2	3
		0		0	0		22.4	21.7	21.5	21.6	21.7	21.9	22.1	22.4	22.6	22.8
10	0					-	0	0	•	.	•	+	•	0	2	5
20			6		•		19.8	0	0	0	21.1	-	•	C	C	2
	0.	0	•	18.6	18.7		6	19.8	•	20.6	6	•	•	+	2	2
		•		7	80	60	6	•	0	0	6	+		+	2	5
	7		16.6	7	7	œ	•	6	6	0	0	~ i	+	+4	2	5
	14.9	ال •	•	•		40	•	6	0	0	(C)	•		•	22.1	22.4
25	4	*		•	7	•	•	6	•	6		+	-	+	~	0
	3	4			7.		•	•	•	0	6	*	+	-	2	2
	3	4		•			60	6	6	0		*4	+	+	2	Ĉ
_	13.1	14.3	15.3	16.3	17.1	17.8	18.5	19.1	19.6	20.1	20.6	21.0	21.3	21.7	22.0	22.3
50	2	÷	W	•	7	7	60	ò	•	0	•	O	+	v 4	5	'n
	2	*	1 0	9			•	•	•	0	•	0	-	÷	2	2
0.30	2	4	80	16.1	17.0	•	18.4	19.0	19.6	0	C	20.9		-0	2	
32	12.7	14.0	18.1	•	•	17.7	•	*	•	20.0	20.5	•		21.7	22.0	



MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #6.94

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =1.00



MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =1.36

a > □ m								E									
ACT0	0.5	9.0	6.7	0.8	0.9	•	-	1.2	1.3	1 4	•		1.7	1 44 1	10	2.0	
000	1	•	-	00		000			00.	000	00		000	00		S)
	e																
				0.	0.												
											-						
o ≠								• •									
					.0									0	0	•	
		-			0		0	, C	0	0		0		50.0	35.4	5	
		6			0.							0	•	-4	0	•	
		-			0				0	0			O	6	•	6	
49	0	c C							43.5		•	6 0	œ	<u>.</u>	œ	œ	
							0	4	6	60		7	7	7	7	60	
						0	0	7	7	9	•	9	r.	7	7.	7	
					10	40 N	•	. u	r u	u o	. u	· •	9			,,	
0 4				26.2	24.2	24.0	24.1	24.4	24.8	25.2	25.6	25.9	26.3	26.6	27.0	27.3	
-			K	1	~	8	1	4	4	+		5	9	•	•	,	
	0	25.5	22.0	21.9	22.2	22.7	23.2	23.8	24.3	24.8	23.2	25.7	26.1	26.5	26.8	27.2	
	·	0	0	:	+	2	3	3	4	÷	5	5	9	•	•	7.	
-		0	0	•	÷	ċ	ċ	3	4	÷	£.	Š	•	•	•	~	
50	œ	60	•	0		ò	?	3	m	•	υ.	ľ.	'n	•	•	,	
	7	œ	0	0	+	•	2	3	3	+	5	5	v.	•	9		
3.5	16.6	17.8	18.9	20.0	56.9	21.7	22.5	23.2	23.8	24.4	24.9	25.4	55.9	26.3	26.7	7	
	9	7.	60	6	c)	-	0	M	3	4	4	5	5	•	9	7	

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #1.48

	5	340.0 34.1 31.1		8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	2288	288.11.288.188.1
 	6 1	34.7	0 8 8 8 8 8 4 9 9 4 8	11000	22.7.5 2.7.6 8.7.6 8.6	227.8 227.8 27.7 27.7
1	9 1	00.00	4 00 4 H Q	27.77	00000 00000 00000	44 W W W W
ļ		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4.60.60	4 E C C C C	26.9	000000
	1.6		7.00 m		20000 00000 00000 00000	000000 00000 00000 44444 4
	1.5	000 4	80 K K K	66666 7 10 4 0 0	4.0000	2 202035 2 252035 2 2 2 2 2 2 2
	1 4 1	0000	31.9 29.1 27.8 26.6	25.50 25.90 25.90 25.90	0.0000 6.0000 6.00044	222223 222223 242223 242223 24223 24223 2423 2423 2423 243 24
		0000	38.1 30.1 28.0 26.9	222 222 25 25 25 25 25 25 25 25 25 25 25	0.000 0.000 0.000 0.000	87.44 8.4.44 8.4.44 7.4.4
8E	1.2	0000	33.7 28.7 27.0 26.1	255 255 255 255 255 255 255 255 255 255	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	44444 4 10000 0
		0000	00476	2.44.25 2.44.25 2.44.25 2.36.08	223.5 23.5 23.5 44.8	888888 8 888888 8 888888 8
	1.0	0000	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	23.0 22.4 22.7 22.6	000000 00 000000 00 000444 00
	0 .	0000	0. 0. 28.		22.7 22.8 21.8 21.7	
	60	0000		27.5	221.1	00000 0 00000 0 00000 0
	r. 7			27.1 23.2 21.8 20.9	000 000 000 000 000 000 000	00000 0000 0000 0000 0000 0000 0000 0000
				N N N N N N N N N N N N N N N N N N N	19.0 10.0 118.7 118.7	18.0 17.9 17.8 17.8 17.5
		000	00000	20 00.00 00.00 01.50	19.1 17.4 17.0 16.7	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
5 m	ACTO	1 4 4 4 4 6 6 7 8 9 9		20000		
				1.47		

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

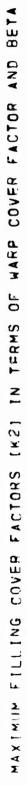
YARN BULK DENSITY =1.50

BETA	.5 p.6 n.7 p.8 p.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.	. n. n. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 41.6 35.6 . n. n	0. 0. 0. 0. 42.8 32.8 30.8 30.1 29.8 29.7 28.4 28.4 28.4 28.4 28.4 28.4 28.6 28.9 29.7 29.7 29.7 26.4 26.4 26.5 26.5 26.8 27.2 27.5 27.5 27.5 27.5 27.5 27.8 28.5 28.	. 0. 28.9 25.9 25.4 25.5 25.7 26.1 26.5 26.9 27.3 27.7 28. 0. 28.9 24.8 24.3 24.5 24.9 25.3 25.8 26.3 26.7 27.1 27.5 27. 22.7 23.8 23.3 23.3 24.0 24.5 25.0 25.6 26.1 26.6 27.0 27.4 27. 22.9 22.1 22.4 23.0 23.6 24.2 24.8 25.4 25.9 26.4 26.9 27.3 27. 22.9 22.1 22.4 23.0 23.3 24.0 24.7 25.3 25.8 26.4 26.8 27.3 27.3	.6 19.9 20.6 21.5 22.4 23.1 23.9 24.6 25.2 25.8 26.3 26.8 27.2 27.7 28.1 28. .4 19.3 20.5 21.2 22.2 23.0 23.8 24.5 25.1 25.7 26.2 26.7 27.2 27.6 28.0 28. .7 18.9 20.0 21.1 22.0 23.7 24.4 25.0 25.6 26.7 27.2 27.6 28.0 28. .2 18.4 19.8 20.9 21.9 22.8 23.5 24.3 25.0 25.6 26.2 26.7 27.1 27.6 28.0 28. .3 18.4 19.6 20.8 21.8 22.7 23.5 24.3 25.0 25.6 26.1 26.7 27.1 27.6 28.0 28.	.7 18.2 19.5 20.7 21.7 22.7 23.5 24.2 24.9 25.5 26.1 26.6 27.1 27.6 28.0 28. 5 18.1 19.4 20.6 21.7 22.6 23.5 24.2 24.9 25.5 26.1 26.6 27.1 27.5 27.9 28. 4 18.0 19.4 20.6 21.6 22.6 23.4 24.2 24.9 25.5 26.1 26.6 27.1 27.5 27.9 28. 4 18.0 19.4 20.5 21.6 22.5 23.4 24.2 24.7 25.5 26.1 26.6 27.1 27.5 27.9 28. 4 17.9 19.5 20.5 21.6 22.5 23.4 24.1 24.8 25.5 26.1 26.6 27.1 27.5 27.9 28.
	0.6 0.7			0.9 21.2 2	0.00 a a 8 6.00 a 4 4 6.00 a 4 4 6.00 a 4 4 6.00 a 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	7.01 10.7 0.7 0.1 0.7 0.1 0.7 0.1 0.7 0.1 0.7 0.1 0.7 0.1 0.7 0.1 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2
0 A C C C C C C C C C C C C C C C C C C	C108 K11 0.5	17 17 18 19 19	0 H W W 4	2000	10. 11. 22. 11. 33.	56 7 7 115. 9

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #1.77

0. U. (8ET					!		ļ	1	
A F	0.5	. 6	. 7	00	0.9	1.0	+		-	• 1	1.5	1.6	•	+ +	- 1	5:	
1 00 0			 • · c c		00	100		0 . 0	1			.00	0.46.3		43.7	38.7	
		 			000	000	000	000	000	84 50 84 50 86 86 86 86 86 86 86 86 86 86 86 86 86		39.39	35.9	32.0	33.9	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	
		 c c						• •		0.	-i C	- 0	0			નન	
	00000	 ccccc	00 C K K K K K K K K K K K K K K K K K K			2000 2000 2000 2000 2000 2000 2000 200	30.5 22.7 27.2 26.7	29.7 28.0 27.6 27.5	22 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	200 200 200 200 200 200 200 200 200 200	00000 00000 00000	30.2 20.0 20.0 20.0 20.0 4	30.5 30.2 30.1 29.9	8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	3000 3000 3000 4000 5000	# 50 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
6 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	00000	6 K V + 0	24.6 22.7 22.2 21.9	00000 44888 0000	0 7 4 4 4 6 C V 4 C C C C C C C C C C C C C C C C C	22225 2225 2425 2425 2425 2425 2425	6 6 6 6 7 7 7 8 4 7 10 0 8	27.1 26.9 26.7 26.6 26.5	7.72 7.72 7.72 8.72	238.0 238.0 27.9	22233 2223 2325 2325 2325 2325 2325 232	29.3 29.1 29.1 29.1	229.7 29.6 29.6 5	30.2 30.1 30.0 30.0	<pre></pre>	8 8 8 8 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9	
		20.02 100.01 100.00	** ** ** **	22222 2222 2226 4		9.44% 8.7.44%	25.5	20000 20000	27.2 27.1 27.1 27.1	27.8 27.8 27.8 27.7	000000 800000 44440	00000	000000 00000 00000	0.0000000000000000000000000000000000000	WWWWW 00000 44444	888888 6000 80000	
			21.0 21.0 20.4	22.3		4 4 4 4 5 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	25.4 25.4 25.4	26.3 26.3	27.0 27.0 27.0	27.72	28.3 28.3 28.3	28.9 28.9	4.65 4.65	29.9	8.00 8.00 8.00	30.8 30.8	



YARN BULK DENSITY = 2.00

								8E 1				•			1	
XC			1.0	. 00	0 • 0	1.0	1.1	1.2	₩.	1 + 1	1.5	1.6	1.7	4.8	4.9	2.0
1 8 1	! ! =	 • c		2 .	0 .	0.0	. 0	0 .			. 0	0	0	0	0	0
		=								•		•	•	0	·	2
		·										0	5	8	0	7.
		· c			ပ						c	5.	6	7	•	9
		<u>-</u>			0				ċ	0	0	7	9	5	5	5.
		c			0	0	0.	0	57.0	38.4	35.8	34.9	34.5	34.3	34.3	4.4
	· 0	· c	ċ	0	۰				•	4	, M)	3	°	3	•)	• 1
	0	·			0	•	4	70	~	2	c.	2	M	M	•	
	0	0			•	5	4	2	è	+	2	2	ς.	2	3	3
	0	- -			50	33.3	31.5	31.1	•	31.3	31.6	-	32.3	32.6	P)	•
	0	<u>.</u>			2	0	0	ċ	0	0	• •		2	2	ò	m
	0	ů.	0 ,		o.	6	6	ò	Ċ	0	-1	31.5	-	ç.	ò	3
	0	c	M 3	œ	28.1	60	œ	0	6	0	0	+-4	•	2	2	3
	0	٠ د	7.	7	r-	7.	œ	6	•	0	c		-	5	2	3
	0		·C	ç	\$	27.4	28.1	28.7	29.4	30.0	30.6	31.1	31.6	32.1	32.5	35.9
	=		4	ıc.	÷		7	œ	•	0	c	· ·	•	2	2	· V
	4	23.5	4		•	9	7	8	·	•	C	-	•	Ci	2	2
	22.1		•	4	S.	9	7.	œ.	•	0	•	0	-	÷	S	2
	+		m	4	S.	56.5	27.4	28.5	29.0	29.7	34.3	30.9	31.4	31.9	32,4	32.8
	3		~	4	5	· o	7	œ	œ	0.	ċ	0	-	.	5	?
	⊙		~	4	5	•	7	œ	8	0	c	0.	• ••	+	í.	5
	ъ.	•		4	5.	•	7	œ	80	0	.	0	• •• •		2	$\dot{\circ}$
	·	71.1	CI		ľ.	•	1	œ	œ	6	ć	0	• •-1	-	2	N,
	5			~	5.	26.1	27.1	28.0	28.8	29.5	30.1	30.7	31.3	31.8	32.3	32.7
	,		~	M.	٦.	•	7	7.	œ	0	c	0			è	ż



MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =2.36

			40 N 4 M		rrr00	0000n
	1 (3		37. 36. 36.	300 day	3000000000000000000000000000000000000	30000 30000
	1.9	1 07 40 0	8.988 8.98.88 1.98.99	まままま ららららら とのらなる。	888888 50000	335.11 355.11 357.11
	1 60	1	37.33 35.1 35.5 35.5	888888 8886 8886 8886 8886 8886 8886 8	44444 00///	44444
	1.7	11.7	37.4 35.9 35.9 35.2	4444 2 V O R 4	4 4 4 4 4 wwwww	44444 44000 88888
	1,6		√ ∂ \(\bar{N} \) \(4444 70 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	20 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	888888 66.444 888888
	.5.		8.68.84 9.07.58.	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	
	1 4 1	00000	2.44 0.04 0.00 0.00 0.00	20000 70000 80000	00000 04400 00000	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
	. ₩ .		0.00 4 0.07 0.0 4 8 8 8 8 8	8 6 6 8 6 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	4 4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	4 4 10 10 10 10 10 10 10 10 10 10 10 10 10
BETA		0000	00004 0101 04000	8 6 6 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	0.000	00000 00000 00000 00000
	+-			20207	4 00 0 0 0 0 0 0 0	了 46 46 46
l I	44 6	00000	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	88888 80448 1044	30.	200.000.000.000.0000.0000.0000.0000.0000.0000
1	1.0	00000	0. 0. 37.8	34.0 31.2 30.5	29.0 29.0 29.0 29.0	2000 2000 2000 2000 2000 2000 2000 200
•	0.0	0000		38.0 33.3 31.3 30.2	28.9 28.5 28.7 28.0	7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7
1 1 1 5	80 !			4887.000	28.2 27.6 27.6 26.9	00000 00000 00000 00000
	/ 0	0 - 0 - 0		0. 0. 33.1	226.9	7.4.4.4 1.0.7.0.0
	6.1			n. n. 0. 37.2	266.7	W W W W W W W W W W W W W W W W W W W
1	0.5				31.11	22.2 21.8 21.4 21.1 20.9
COVER FACTOR	(K1)	0 4 0 8 4	2222 2222 2322 2322 2322	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	a a



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BILK DENSITY =2.50

1	2.0		·	6	M	-4	0	80	00	80	7.	7	~	7	7.	7.	•	•	ò.	•	9	9	•	•	9.9	•	•
1	1.9		•	2.6	5.6	1.8 4	0.0	6,8	8.2	1	7.4	7.1	6.9	6.8	6.6 3	6.5	6.5	4.	6.3	6.3 3	6.2	6.2	6.2	6.2	6.1 3	6.1	6.1
1	1.8			٥.	2.4	3.4		9.1	8.2	7.5 3	7.1	8.9	6.5	6.3	9	6.1	6.0	5	5.8	5.8	5.7	5.7	5.7	5.6	5.6 3	5.6	5.6
4	1.7			•	.0	17.5 4	1.8	9.5	8,2	7	6.9	6.5	6.2	5.9	5.7 3	5.6	5.5	5.	5.3	5.3	5.5	2.5	ار. 4	5.1	5.1 3	5.0	2.0
	1.6	1				•	7	0.5	8.5	7.4	6.7		5.8	5.5	35.3 3	5.1	0	00	8.4	4	4.6	9.0	2.5	4.5	34.5 3	4.4	4.4
1		; 				6	59.7	2.8	4.0	s.	9.9	5.9	4.	5.1		4.6	4.4	10	4.2	4.1	4.0	3.9	6.8	3.8	33.8	3.8	3.7
t	1.4	! ! !				•		2	+1	8	•	E	5.1	4.6	34.3	4.0	3.8	9	3.5	3.4	3.3	3.2	3	ئ	33.1	3	د
ļ	1.3	1				0	. 0	•	•	0	7.	35.9	4	4	33.8	, M	m	M	٥.	_	٠ د	•	2	5	32.3	2	ċ
98 Ti	1.2	1					. 0		2	80	0		S	4	33.4	·	3	5	5	•	+	-1	÷	H	31.4	-1	-
		1					<u>-</u>			c.	æ	38.5	R.	4	33.1	ċ			1.	+	ċ	30.8	c	0	30.5	ċ	c
	0.4	1		9.	0	0	0				0	53.8	60	4	~	2	31.4	0	0	0	c	8.62	6	φ.	56.8	•	·
	6.6	ı					0					.0	•	00	4	2	-	0	•	0	6			8	8	8	œ
1	. G	ł .					с С					·		-	<u>.</u>	M	31.2	6	•	œ	œ	27.7	7.	7	27.1	ċ	ç
	0.7	! •					· C	С					0					c	œ	,	7	26.5	٠,	5.	75.1	٦.	ı.
	9 .	1 1 1					<u>.</u>	<u>-</u>	C	c C	C	C	· C	-	C	٠.	0	α	<u>-</u>	7	ć	25.5	4	4	74.1	*	M,
!	. S	1					=	n.				0					• C		J	5	ç		•	٠ د	N	2	•
	4 ×	1 1 1	20	21	22	53	40	25	90	27	92	56	30	31	32	33	3.4	35	36	37	3.8	39	0 4	41	42	43	4 4

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #2.75

								98							,	1
(K1)	0.5	9.0	0.7	9 .	6.0	1.0	1.1	1.2	1.3	1 4	1.5	1.6		8	6	2
	l 1		! !	 	,) 	•	1	; ;)))	
					•											٠
															0.	•
														•	3	+
	0	c c		0	0		0.	0	ů.	0.	0	0	0	56.8	48.3	45.7
4	0	0.		0	0.	0	0	0	0	.0			51.2	9.	÷	3
	0				0					•	•	•	4	2	2	÷
	Ü.				0.				0	8	9	M	-	+	-	1.
	0				0			•	3	4	•	0	0	0	0	0
		0			0	0	0	67.0	43.8	40.9	39.9	39.5	39.5	39.8	39.7	39.9
56	0		0.	0	0.			•	0	\$	œ	æ	60	٠.	•	0
	0					•	~	0	œ	7	7	œ.	80	80	o	•
						m)	α.	7	r.	7.	L-	۲,	œ	60	8	•
		ت	_	ċ	5.	37.8	36.4	36.1	36.2	36.5	36.9	37.4	37.8	38.2	38.6	39.0
						r.	3.	5		•	÷	7		œ	, 00	80
4.6	.0				4	4	4	4	5.	10	Š	•	•	7	œ	60
35			~	4	3	₩	8	4	5	5	9	9	7	7	6 0	80
			₩	?	2	ç,	٦.	4	4	5	9	9	7	7.	6	æ
	0	36.0	31.3	31.1	31.6	32.3	33.0	33.8	34.5	35.2	35.9	36.5	37.1	37.6	38.1	38.6
		C	•	ċ	ţ	+	2	3	4	5	5.	9	7	7	60	œ
Ø.	32.3	a	œ	•	0	+1	3	2	4	5	5.	9	7.	7	6 0	a O
	7	7	α	0	0	+	~	الله	4	4	r.	•C	9	7	80	60
	J.	÷	ŕ	6	0	1.	~	*	4	4	٦.	S	9	7	®	60
42	24.8	76.1	27.4	28.8	30.0	31.1	32.2	33.1	34.0	34.8	35.5	36.2	36.8	37.4	38.0	38.5
	4,	٠ س	7	α.	•	•	5	%	3	4	5	•	•	7	7.	نق
	·,	5.	9	œ.	6	0	ò	~ ?	<u>س</u>	4	'n.	•	9	7	۲.	œ.



MAXIM MA FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =2.95

							í	BET		ļ				4 0 0	1	0 8 8
X	0.5		-	60	0.0	1.0		1.2		4 .	1.5	1.6	F	60	4.9	2.0
1 5	i i	ı	; ; !	•	1	• • •	l l	1 1))) 			
				C												
				<u>-</u>												•
														0	•	•
				0	0.	0					0	0.	0	0	63.0	51.6
	S	c C	<u>-</u>	· c	. 0		.	· 0	٠.	0				5	•	9
	0	c				,0		0	.0		0		**	7	R.	4
						с				0	2	0	5	4	P)	3
						<u>_</u>			•	M	7	4	3	2	2	3
				0		0	0	0		46.2	43.4	42.2	41.8	41.6	41.7	41.8
	0.			C	0.	0.		4.69	•	5	*1	1.	0	1.	1.	
		· c						4	•		0	0	0	0	0	⊣
						•	4	·	0	6	0	0	0	0	0	0
						5	40.1	38.7	38.4	38.5	38.7	39.1	39.4	39.8	40.2	40.6
					0	•	7	7	7.	7.	m	80	6	6	0	5
	0.	.				~	ç	9	•	7.	œ	•	6	0	•	6
35				• •-4	9	5	5	\$	•	7	7	œ	œ	0,	6	0
			2	\$	4	4	r.	5	ċ	9	7	80	00	6	6	0
	=	·	36.4	33.8	33.6	34.1	34.7	35.4	36.0	36.7	37.4	38.0	38.5	39.1	39.65	40.1
		, مین	3	0	2	3	4	R.	r.	•	7	7	80	6	•	0
				•	5	3	4	4	5	•	7.	7	œ	60	•	0
	œ	Ċ	c	+	4	2	100	4	5	•	7	7.	80	60	•	0
	0	α.	0	0	-4	å	M)	4	5	9	. 9	7	80	80	0	6
42	27.6	4.75	29.0	30.2	31.4	32.5	33.5	34.4	35.3	36.1	36.9	37.6	38.2	38.8	39,3	39.9
	9	.′	œ	0		ŝ	, V)	4	5	9	· c	7	œ	60	0	6
4	3	Ś	αc	6	+	ς.	m	4	5	9	ć	~	œ	œ	6	•

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 3.25

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =3.54

BETA	1.1 1.2 1.3 1.4 1.5 1.6 1.7	0. 0. 0. 0. 0. 0. 0. 0. 0	0. 0. 6. 0. 0. 0. 0. 87.15			0. 0. 57.6 50.8 48.5 47.5 47.0 4	. 0. 0. 56.9 49.8 47.6 46.6 45.2 46.1 4	0	n. 60.6 48.4 45.9 45.0 44.6 44.6 44.7 45.0 4	4.4 48.2 45.1 44.1 43.8 43.8 44.0 44.3 44.6 4	.7 44.5 43.3 43.0 43.0 43.3 43.6 43.9 44.3 4	4.0 42.5 42.1 42.2 42.5 42.8 43.2 43.6 44.1 4	42.5 4	0.4 40.4 40.7 41.2 41.7 42.2 42.7 43.2 43.7 4	9.4 39.8 40.3 40.8 41.4 42.0 42.5 43.1 43.6 4	8.7 39.3 39.9 40.5 41.2 41.8 42.4 43.0 43.5 4	8.2 38.9 39.6 40.3 41.0 41.7 42.3 42.9 43.4 4	7.8 38.6 39.4 40.1 40.9 41.5 42.2 42.8 43.3 4	7.5 38.4 39.2 40.0 46.7 41.4 42.1 42.7 43.3 4	37.2 38.2 39.0 39.9 4n.6 41.3 42.0 42.6 43.2 43	7.0 38.0 38.9 39.7 40.5 41.3 42.0 42.6 43.2 4	6.8 37.9 38.8 39.7 40.5 41.2 41.9 42.5 43.1 4	36.7 37.7 38.7 39.6 40.4 41.2 41.9 42.5 43.1 43	6.6 37.6 38.6 39.5 40.3 41.1 41.8 42.5 43.1 4	6.5 37.6 38.5 39.5 40.3 41.1 41.8 42.4 43.1 4
	0 8 0	0			, ,		0	•	c)		0	. 0	. 62.	. 44.	8.9 40.	1.0 38	A.fi 37.	6.3 36.	5.2 35.	4.4 35.	3.9.3	3.4 34.	3.1 34.	7.8 34.	2.6 34.
	6 11.7		C (C (= c		C	0	C	U	·	C		C	<u>-</u>	C	43,8	37.4	6 35.4	0	e 33.0	5 32.5	.6 31,0 3	9 31.4	4 31 0
	1 C		C: (<u>ت</u> (= c		C .	<i>د</i>		c •	C	C		_			C	с. •	46	n. 55	1 52	6.7 31	36.2 Sn.	4.8 19	0/ 0/

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =3.75

							1	99				1		1		i
X (0.5	0.6	0.7	0.8		0 1	1 • 1	1.2	1.3	ੇ ਜ ਜ	1.5	1.6	1.7	4 H	0.1	, , ,
4		1		0		•		•	0	0		0	0	0	0	0
						0									•	Ś
		C	_ _	0		0	0	9	0	0		0	0	0	68.5	57.7
						0							Ö	3	•	8
						0						0			+	0
	٠ ت	٠.	•		0.								8	0	·	6
										ů		+	6	•	60	80
						0	.0		0	6.95	50.7	48.7	47.8	47.5	47.4	47.4
								•		0	-	7	•	•	•	9
							C	0	0	7	•	5	5	•	•	9
		ŗ.	ů.	c.				•	•	5	ĸ.	Š	5	5.	E.	9
15 E	• •					•	-	5	4	4	4	4	4	30	5	9
					0	52.6	45.4	43.8	43.4	43.4	43.7	44.1	44.5	44.9	45.4	45.8
					œ.	•	3	2	2	3		3	4	4	5	5
				\subseteq		2	+	+	+	ò	~	3	4	4	v	5
		٠ د			2	0	ċ	+		5	~	٠ س	3	4	4	5
			•	CU	0	0	6	0	·	+	C	₩)	M	4	4	5
			47.1	39.5	38.4	38.8	39.4	40.1	40.8	41.5	42.2	42.9	43.5	44.1	44.7	45.2
			0	7	7		6	0	0	+	2	c.	3	4	4	3
		4		÷	7.	7	©	6	0	-	-	2	3	4	4	15
4	0.	•	7.	5	9	7	œ	6	0	• •	-	2	M	3	•	:0
_	T.	4	4	5	•	7	œ	6	0	-	•	2	Ι.	M 2	•	r.
46	34.9	32.8	33.4	34.5	35.7	36.9	38.0	39.0	40.0	40.8	41.7	45.4	43.1	43.8	4.4	45.0
	•	-	~	4	5.	9	7.	80	6	0	+	ς.	M	3	4	Š
	ċ		ò	3.	5	•	7.	60	6	0		5	3	3	+	4

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

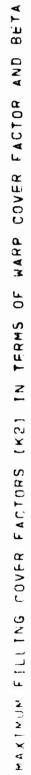
YARN BULK DENSITY =4.00

THREE-HARNESS WEAVE FABRICS

α > σ π								BET					1			
FACTOR [K1]	7.0	9.0	n.7	1	0.0	1.0	1.1	1.2	1.3	1	1.5	1.6	1.7	1.8	1.9	2.0
14	0		*			0			0	0		0.	9.	0.		0.
č.				.		-										0
50	0		-	0	0	0	0.	0		0.		0	0.	0.	6	73.9
27			0	c		-				٠.				0		.
58	0.	0	0	•											•	4 (
56		.	<u>-</u>	_		-								. ·	•	Ņ
			c							. 0	C	0	4	~ ~	-	0
		: c				•				0	59.0	53.2	51.2	50.5	49.8	49.7
						_				9	2	0	6	6	80	6
									0	1	6	8	8	8	8	8
. w					0.	-			+	80	7.	7	7	7	7	∞ `
			_						00		•	• •	•	7.	7.	7.
						0	2		9	5.	5	•	•	•		7.
			0	6	•	57.2	47.5	45.5	45.0	45.0	45.2	45.6	46.0	46.4	46.9	47.3
			0			7	4	4	4	4	4		5	•	•	:
39	0.			0		4	3	3	, M	, M	4.	4	5.	ó	•	:
				4		2	2	•	m	2	4	4	5	5.	ċ	•
4 4				45.9	41.9	41.3	41.5	41.9	42.6	43.2	43.9	44.5	45.1	45.7	46.3	46.8
			9	+	0	6	ċ	+	2	3	5	₹.	5.	Š	•	ġ.
			2	6	•	6	0	+	ö	?	ъ.	4	4	.	÷.	÷.
4	0.		•	8	80	6	0	•	+	÷.	κ.	4.	4	5	•	•
45		=	7	7	7	80	•		÷	2		4.	4.	5	•	•
4 6		36.6	35.8	36.4	37.4	38.5	39.5	40.5	41.4	42.3	43.2	43.9	44.6	45.3	45.0	46.5
		4	4	7.	7.	ж •	6	•	+	2	, M	3.9	4	v 1	, n	0 v
4 8	4	×.	4	5	6.	æ	ò	•	+	۲.	ю.	5. B	4 4		•	•

YARN BULK DENSITY =4.13

		; ; ;	1	, 1 , ,	1	,	1 1 1	₽- 1 10 11	1	•				,	•		
A *~	0.5	9.0	0.7	9.0	0.9	1.0	+ 1	1.2	1.3	4 1	1.5	1.6	1.7	1.8	1.9		
9				=	0.	0	0	0		0				0			•
	0.		0.				0.		0				0	6		٠ د	- +
															•	•	~
-				0.									7	6 0	5.	ъ	7
	0										0	6	7	4.	8	~	0
							0	0	0		69.3	56.5	53.3	51.9	51.2		<u> </u>
									0		5	5	1.			0	
	0									5	-	0	6	6	6	ċ	10
40	0	ů.	0	0.	•	0.			5	1.	•	&	8	80	80	49.1	-
35							0	7		80	60	7.	7	80	80	20	_
· M	· c		0	0	0	0	62.2	50.4	48.0	47.2	47.0	47.1	47.4	47.7	48.0	48.4	_
						0	C	7.	9	6.	•	6.	7.		7	8	٥.
					•		7.	5.	5.	5.	5	6.	9	7.	7.	8	_
39		Ü.				7.	4	4.	4.	4	5.	5.	•	•	7.		σ.
	0				ø	4	'n	<u>س</u>	4.	4	5	5	•	•	,	7.	
41	0	0	<u>.</u>	2	44.1	42.7	42.6	43.0	43.5	44.1	44.7	45.4	46.0	46.5	47.1	47.6	. ــ
	0				- i	+	+	8	ъ.	م	4.	5	3	•	7	7.	
	0		Φ	+		•	-	?	5	ب	4	5		٠.	•	7.	
4 4	.0		•	6	0	9	0	+	5	٠.	4	4	5.	•	•	7.	_
_		œ	•	80	80	6		-	~	3	4	4	5.	•	9	7	
			7	7	80	•	0	+	8	ъ	m	4.	5	•	•	7.	
47	Ξ.	36.6	36.1	36.9	37.9	39.0	40.1	41.1	42.1	43.0	43.8	44.6	45.3	46.0	46.7	47.3	
		4	5.	ç	,	œ	0	+	÷	5	'n	4.	ت	•	•	7.	•
	4.	M.	4.	9	7	æ	6	•	+	5	ъ.	4	5	5	9	7	
50	32.1	52.R	34.2	35.6	37.0	38.4	39.6	40.7	41.8	42.7	43.6	44.4	45.2	45.9	46.5	47.2	



YARN BULK DENSITY =4.60

THREE-HARNESS WEAVE FABRICS

A C								9.E.1					1	9		1	
	1.	 	. · ·	1 60	10	1.0	 	•		1 4 1	1.5	9:	1 1		4.9	N 1	
	=	; . ; C			0 .				.0	• 0	0	0.	0	0	° c	0	
					0											Ċ	
															c.	•	a
	.0		· U												•	ċ	
													C	œ	+	æ	٥.
		=										0	9	•	1	5.	_
									0	0	0	56.5	5R.9	56.3	55.1	54.5	
										0	·	œ	5	4	M	M	
7.4		.		0	ŋ.	0	С	0				4	٠.	ċ	ċ	2	
	.	·		·		0			9	^	4	~	\sim	~	~	2	•
					. 0			0	58.0	53.5	52.0	51.4	*	*	51.5	+	
									3	+	0	0	<u>.</u>	0	-	$\vec{+}$	24
							5.	3	0	o.	·	œ.	0	ပ		• •-1	
				·		· :	53.9	0	6	œ	œ.	·	6		0		~
			. C			\$	0	ar.	7.	æ	6 0	ος.	٠ ح	•	•	0	
41		· c	0	c	4		47.7	47.1	47.1	41.5	47.9	48.4	49.0	49.5	50.0	•	
						7	ć	ç	÷	7	7	ж ЭС	œ.	۰.	•	0	-
					۲.	5.	5	30	•	ò		7.	œ	ъ	·	0	~
					4	4	4	5	5.	9	7.	7	80	•	6	ن	٥,
			~	4	80	8	, (24	4	5	•	ć	7	80	œ	•	.0	_ 1
			ċ	ċ	5	2	3	4	5	s.	ċ	۲.	60	œ	6	C	_ 4
47	U	٠,	40.4	41.1	41,4	42.1	43.0	43.9	44.8	45.7	46.5	47.3	48.0	48.7	40.4	50.0	_
		ľ	ċ	ċ	0	· ~	2	3	4	5.	·	-	60	œ	6	Ф	•
		•	œ	0	0	•	٠.	~	4	5	•	~	7	œ	•	6	_
5 0	0.04	\$7.8	37.7	38.7	39.0	41.1	42.2	£ 3.3	44.4	45.3	46.2	47.1	47.8	48.6	49.2	49.9	^



4-HARNESS

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =0.54

a w			ļ					9E -	ļ		Ì					i	
★	0 ,5	9.0	0.7	0		1.0	4.4	-	-	4	1.5	4.6	+ 1	+1		2.0	,
! ! @ o !	0.0	00.	000	00.					000		000	00	00.		00		
														•		•	
														30.4	23.4	22.0	
ਲ ਵ •ਜ਼ਾ ਵਾਂ	•••			00										• 5	00		
			000	000	000		23.8	20.0	19.7	18.9	60 60 60 60 60 60	80 80 80 80 4 64	9.89	9.00	46.8	8.66 8.66 9.66	
	16.9				15.6	16.0	9 9	6.7	~ ~	~~	7.	00 00	00 00	00 00	œ œ	60 60	
	24444 24444 24084	13.2 12.9 12.9 12.7	1444 1444 1446 1467	4444 0 4400		22222 2222 2222 2222 2222 2222 2222 2222	16.2 16.1 16.0 16.0	44444 6666 6666 6666	117 117 116 116 19	17.71 17.03 17.03	17.7 17.6 17.6 17.5	17.9 17.9 17.9 17.8	844 846 846 844 844 844 844	4 4 4 4 4	1111111 8888 8066 6066	4 4 4 4 4 8 8 8 8 8 8 8 6 6 8 8	
6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	444 4444 60444	122.6 122.6 122.5 123.5	64444 04444	4444	4444	4444 505444	94444 97566 99000	44444	11	17.22	22 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	17.8 17.8 17.8 17.8	##### 8 & 8 & 6 #####	44444 600000000000000000000000000000000	444444 8888 8666	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	444	12.5 12.5 12.5	244 444	444	4 4 4 80 80 80	15.4 4.01 4.61	15.9 15.9 15.9	4.01	16.8 16.8 16.8	17.2	17.5	17.8 17.8 17.8	1.88 1.4.4.	100 100 100 100 100 100 100 100 100 100	88 84 4 8 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	8 4 4 4 8 8 8 8 8 8	



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.56

а ш н а с				1			!	oo i				1 1 1				1
X C	0.5	9.0	0.7	0.8	0	0 . 1	1.1	1.2	4.3	1.4	-	1.6		4.8	6 1	2.0
000	-	1	i		00				00	00	00		00		00	
5 T T T T T T T T T T T T T T T T T T T							00000					27.52 20.52	, v &	00000000000000000000000000000000000000	20.0 21.1 20.0	2000 2000 2000 2000
**************************************	00000							22 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4		440000	0 60 60 60	ဇ-က ေလ ထ ထ	19.01 18.81 18.7 18.6	24444 24444 24444	900000 90000 99000	20000 20000 70400
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	441 471 100 100 100 100 100 100 100 100 100 1	4 5 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	4 4 4 10 10 7 10 10 10	# # # # # # # # # # # # # # # # # # #	7 7 7 7 7 7 7 8 7 8 7	16.2 115.0 15.9	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	146.90 166.90 166.90	4 K C C C C C C C C C C C C C C C C C C	17.7 17.6 17.6 17.6	18.0 17.9 17.9 17.9	###### \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	444444 88888 88888 88888	18.7 18.7 18.7 18.7	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	99999
	11111111111111111111111111111111111111	12.5.4 12.5.6 12.7.6 12.7.7	11 13 13 13 13 13 13 13 13 13 13 13 13 1	4 4 4 4 4 N. N. N. 4 4	55555	15.8 15.7 15.7 15.7	1100 1100 1100 1100 1100 1100 1100 110	16.7 16.7 16.7 16.7	47.2 47.4 47.4	5555	17.8 17.8 17.8 17.8	8 8 8 8 8 8 8 8 8 8	44444 44444	1188.7 7.081 7.081	8 8 8 8 8 8 9 9 9 9 9	##### 66666 #####
	11.6	12.7 12.7 12.7	9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	444	1.5.5 1.5.1	15.7 15.7 15.7	16.2 16.2 16.2	16.7 16.7 16.7	17.1 17.1 17.1	17.5 17.5 17.5	17.8 17.8 17.8	60 FF	60 00 00 00 00 00 00 00 00 00 00 00 00 0	18.7 18.7 18.7	\$ 60 60 \$ 60 60	T. 6 T

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BEFA

YARN BULK DENSITY =0.58

COVER FACTOR [K1]		9	1	1 00 1	0	101	1 +1	BETA	ю Н	1 4	- F	9		1 60 i	6	2
						• •	• •	• •	• •		• •	• •		• •	00	
전 전 전 전 전 O 전 전 전 전							00000				2000.	21.	NN 0000	0. 0. 22.8 20.7	00000 0000 0000 000	
	00000	0. 0. 17.7	12000 1600 1600	10000	2000 1700 1700	20 11 14 10 10 10 10 10 10 10 10 10 10 10 10 10	200.4 117.5 17.2	64.00 64.00 67.00 67.00 67.00 67.00	22.3 119.2 118.4 17.6	2000 000 4 1 000 4 1 000 1 1 000	0.0000000000000000000000000000000000000	90000 90000 14000	94.00	99999 99499	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	10 K 9 9
	44740	44888 9 C 0 4 V	24444 07404	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	44444 46766 46766	44444 6666 70004	17.0 16.8 16.7 16.7	8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7.7.1 6.7.1 6.7.7 7.0 8.7.7	18.0 17.9 17.9	4 4 4 4 4 80 80 80 80 10 10 10 10 10	4 4 4 4 4 80 80 80 80 80 80 80 80	4444 6060 6060 6060 6060 6060	66666	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
2222	112.0	44000 44000	44888	4444 0 @ 7 7 7	4444 54444	16.00 16.00 16.00	44444 66666 66666	47.0 17.0 17.0	7. 7. 1 7. 7. 1 7. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4.	17.8 17.8 17.8 17.8	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	44444 88888 88888	20 20 20 20 20 20 20 20 20 20 20 20 20 2	00000	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	200000 20000 20000 20000 20000
	444	12.9 12.9	13.9 13.9	14.7	~	16.0 16.0	166.57 166.57 166.57	17.0 17.0 17.0	17.4 17.4 17.4	17.8 17.8 17.8	1 00 00 00 00 00 00 00 00 00 00 00 00 00	8 4 4 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	18.7 18.7 18.7	19.0 19.0	19.2	10.01



MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.65

or min								9 E				ı	(4 (•
ACTO (K1)	0.5		0.7	3	0.9	1.0	4.4	1.2	• •	. +1	5	1 -4 1		6	6	
000			•						00		00					00
O + 0, 10 * + + + + +					00000							00.00 00.00 00.00	00004			24.0 24.0 34.0
16tr	00000	00000	N 3 3 3 3	00000	0 0 0 1 1 1 8 1 4	0 26.7 19.7 18.4	0 0 0 1 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0	0.021	222.1 200.1 190.5	0400 0400 0400 4004	233 233 199 29 29	22 22 20 20 20 20 4 4 6	21.0 20.0 20.0 20.0 20.0 20.0	21.7 201.1 20.7 20.5	2000 2000 2000 2000 2000	21.7 21.3 21.0 20.9
00000 04004	4444 07456 00.00	0 0 0 0 4 4 0 0 0 0 0 0 0	4 C 9 E H H H H H H H H H H H H H H H H H H	15.00	11111 1000 1000 1000 1000 1000 1000 10	17.9	18.2 18.0 17.8 17.7	4 4 4 4 4 4 4 6 8 8 8 8 8 8 8 8 8 8 8 8	1118 118 18 18 18 18 18 18	9 9 9 9 8 9 9 9 9 9 9 9 9 9 9	444 644 844 844	19.8 19.7 19.6 19.6	2000 2000 1000 2000 2000	200.00 200.00 200.00	00000 0000 0000 0004	20.7 20.7 20.7 20.7
	1152 122 122 122 123 125 125 125 125 125 125 125 125 125 125	4 W W W W O O O O O O O O O O O O O O O	24444 20000	21 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	17.1 17.0 17.0 17.0	117.6 17.7 17.5 17.5 17.5 17.5	4444 888 44000	11 11 11 11 11 11 11 11 11 11 11 11 11	21 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1199.3 199.2 199.2	19.6 19.6 19.6 19.6	19999 19999 19999	200.2	00000 00000 4444	00000
0 4 6 6	12.5 12.5 12.5	13.7 13.7 13.7	14.7 14.7 14.7	15.6 15.6	16.3 16.3 16.3	16.9 16.9 16.9	17.5	18.0 18.0	6 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	188.9 18.8 18.8	19.2 19.2	19.5 19.5 19.5	19.8 19.8 19.8	20.1 20.1 20.1	000 000 444	20.6

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.66

FOUR-HARNESS WEAVE FABRICS



MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =0.67

> (1											1				ı
K 4 1	0.5	9.0	0.7	0.8	6.0	1.0		1.2	1.3	*	5.5		1.7	1.8		2.0
. 60	0		•	0	0	0	. 0	. 0	. 0	9.		•	•	0	0	0
0			0	ò					•							
0																0
•																•
2															•	Ġ
3								0	0	0	0	0	0	0	34.6	
4	0	•		0	ت ت	0.	0	0.			0.				1	2
ľ	0			0					0	0	*	1	~	Ci.	Ĉ	3
9	0					0	•	0	M)	~	21.7	21.5	21.5	21.5	21.6	
7					•		اريا •	بہ	0	0.	0	0	+	+	*	+
8					4	0	0	6	0	0	0	0	0	0	+	+
0		c c	0.	4.06	19.2		19.1	19.3		19.8	6	0	0	0	•	
0	0		60	7	œ	8	ac.	60	Ċ,	6	0	0	0	0	0	-4
+	?	9	•	7	L.	7	.	8	6	0	•	0	0	0	0	÷
2	ď.	5	•	9	1	7	œ	8	·	6.	6	0	0	0	0	+
₽	4	4	S.	9	٠.	•	œ.	80	æ	6	•	0	0	0	•	- t
4	13.5	14.5	15.4	16.1	16.8	17.4	17.9	18.4	\$ 8.6	19.5	9.6	19.9	20.5	20.5	20,7	21.0
5	3	4	tv.	•	9	7	7	00	8	0	•	0	0	0	6	0
9	, M	4	5	9	9	7	7.	æ	00	6	0	0	0	0	•	0
7	2	4	5	3	. 9	7	1.	80	8	6	6	6	0	0	•	0
80	2	4	3	5		7		80	80	6	6	0.	0	0	0	0
50	12.3	14.0	15.0	15.8	16,6	17.2	17.8	18.3	18.7	19.1	19.5	19.8	20.2	20.4	20.7	20.9
0	2	•	10	5	9	17.2	17.8	18.3	18.7	19.1	19,5	0				0
**	C	13.9	4	J.	9	•	7	•	•	•	•	•			6	20.9
	C	-	•		16.5	7	1	α	00	0	0	0	_	_	C	c

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.68

A P P P P P P P P P P P P P P P P P P P								8 ₽								
K11	0	9.0	0.7	0	0	1.0		. 2	4.5	 	4		1.7	1 00 (1.9	•
000	,	0		•			•		•		6) ; ^			0	
•															•	
										9						.0
																ó
	0.			0		0	0	•	9.		0	0	0		•	27.6
	O		0		0											3
15									0	0	10	3	2	~	~	~
							0	•	4	2	2	+	+1	+4	-1	•
					•	0	-	+	+	-	,	+	+	-	+	-
				•	1		20.4	20.2	20.5	20.3	20.5	20.7	20.9	21.1	21.2	
	0		.	21.5		6	6	6	0	0	0	0	0	0	<u>.</u>	+
		0	0	œ.	80	80	ς.	•	•	6	0	0	0		÷	+
	0	17.3	17.0	17.3	17.6	•	18.5	18.9	19.3	19.6	19.9	20.2	20.5	20.7	21.0	21.2
	5	₹.	•	6	7	7.	8	8	6	•	0	ċ	0	0	0	+
	4	ď.	8	\$	7		8	90	0	0	•	0	0	6	0	$\ddot{\mathbf{H}}$
		•	'n	•	7.	-	\$ 0	8	٠ •	6	•	0	Û.	9	0	*4
	3	4	2	•	9	7	•	8	6	0	•	0	0	0	6	-
	13.2	14.3	15.3	16.1	16.8	17.4	18.0	18.5	18.9	19.3	19.7	20.0	20.3	20.6	50.8	
	3	4	ς.	•	•		•	œ	€	•	•	0	0	0	0	.
	3	4	ς.	•	•		7	8	80	•	•	0	0	0	0	-
59	•	4	5	•	9	7.	7	œ	60	G.	•		0	0	•	÷
30	S	4	80	5	•	-		8	80	0	•	0	0	0	•	4
	2		_	15.9	16.7	17.3	17.9	18.4	18.9	19.3	_	20.0	0	0	0	÷
32	12,8			5	•	7	7	8	60	•		•	20.3	20.6	20,8	21.1



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.69

								8€1				ļ		(•
▲ ~ フ 木 (1	. 6	0.7	0 .	0.0	1.0	1.1	1.2	PO +- :	1.4	5.1	1.6	1.7	~	6 !	2.0
 co (5	í I •		0	0	! ! •			0	00	0	0		0
o																
				0												. 0
					0.											
																0
₽		0	0	0		0		•	ë (0		0	0 4	ė.	29.1
च च	• •				_											•
	0								0	0	4	4	m	2	5	2
	0	0	6	0	.0	0.	0	0	25.8	23.2	22.4	22.1	22.0	22.0	22.0	
						•			-	+	#1	+	+	4	+	+
	ث						0	0	.	0		0	-	÷	-1	+
				23.0		•	0	6	•	0	0	0	0	• • i	• •	
0.0			•	60	60	60	0	6	6	6	0	0	0	-	+	+
	0	a o	17.3	17.5	17.8	_	18.7	19.0	19.4	19.8	20.1	20.4	20.6	20.9	21.1	21.4
	9		9	•	7	6 0	œ	8	•	6	ć	0	0	0	-	+
	4	5	€.	•	7	7	œ	8	6	Ċ.	0	0	0	0	÷	•
	•	4	S.	•	7.		8	œ	•	6	0	0	0	0	H	- -1
	₩,	4	70	9	7.	7	œ	60	6	6	0	0	0	0	-	+4
	5	4	5	•	9	5	œ	80	6	6	6	0	0	0	• •	+
	٠ د	4	5	•	9	7.	œ	œ	6	•	0	0	0	0	•	•
28	13.1	14.3	15.3	16.1	16.9	17.5	18.1	18.6	19.0	19.4	19.8	20.5	20.5	20.7	21.0	21.2
50	3	4	S.	•	\$		œ	60	6	o.	0	0	0	0	H	+
	М.	4	5	•	9	~	60	œ	•	•	•	0	0	0	+	+
31	12.9	14.1	15.2	16.0	16.8	17.5	18.0	18.5	19.0	19.4	19.8	20.1	20.4	20.7	21.0	21.2
	ò	4	5.	•	9	7.	a C)	8	•	•	•	0	0	0	-4	+

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.70

		ı					 	8 0 ⊞	1		1	: (8 1 0	1	•	•
K 1 1	0.5	9.0	7.0	60	6.0		4.4	1.5	1.3	1.4	4) (1)	1.6	1.7	1.8	4.9	2.0	
60	0.	6	0	-			. 0		.0				•	•	•)
			0.												0	ò	
					.0												
																•	
	. 0								•		eo «			•	970	31.7	
														D	•	•	
									0	•	•	4	3	10	17	2	
				0	0	0	0	0	7	1 20	22.8	22.4	22.2	22.2	22.2	ċ	
					-	•	0	2	-	1.	+	1:	•	+	•	5	
						2	+	0	0	0	0	+	+	+	+1	+	
	•		0	26.0	20.6	0	•		20.1		0	0	•	•	•	21.7	
				6	80	60	6	6	6	0	0	0	0	***	• •	÷	
	0	60	17.6	17.7	18.1	18.4	18.8	19.2	19.6	19.9	20.2	20.5	20.8	21.1	21.3	21.5	
		÷	•		7	8	60	6	•	6	•		0	.	-	-	
	4	K	•	9	7	∞	•	40	6	6	0	0		;	-	· ·	
	14.1	•	5	•	7.	7	•	00	•	0	9	0	0	0	· mi	e-d	
25	2	4	5	9	7.	•	•	60	•	6		0		0	-	-	
	-	14.6	15.5	16.4	17.1	17.7	18.3	18.8	19.5	19.6	20.0	20.3	20.6	20.9	21.2	21.4	
	3	• •ा	5	•	7	7		80	•	6	0	0		0	-	+	
	3	4	5	•	7		œ	æ	6	6		0	0	0	-	7	
		4	5	•	7	7	80	80	6	ô		6	0	62	-	;	
	₩.	-	S	•	9	7	œ	80	6	6	•	0	0	0		+	
31	13.0	14.2	15.3	16.2	16.9	17.6	18.2	18.7	19.1	19.6	19.9	20.3	20.6	20.9	21.1	21.4	
	٠ س	4	3.	•	•	7.	œ	80	6	0	•	0	0	0	-	+	

MAXIMUM FILLING COVER FACTORS [KZ] IN TERMS C. WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.71

\$ 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1.6 1.7 1.8 1.9 2	0.0.0.0.0	0. 0. 0. 0 0. 0. 0. 0 0. 0. 0. 0 0. 0. 0. 0	25.7 24.2 23.6 23.2 23.1 22.7 22.5 22.4 22.4 22.5 21.7 21.8 21.9 22.0 22.1 21.3 21.4 21.6 21.8 21.9 21.0 21.2 21.4 21,6 21.8	20.8 21.1 21.3 21.5 21.7 20.7 20.7 21.0 21.2 21.5 21.7 20.6 20.9 21.2 21.4 21.6 20.5 20.8 21.1 21.4 21.6	20.5 20.8 21.1 21.3 21.6 20.5 20.8 21.1 21.3 21.6 20.5 20.8 21.1 21.3 21.6 20.4 20.8 21.0 21.3 21.5 20.4 20.7 21.0 21.3 21.5	20.4 20.7 21.0 21.3 21.5 20.4 20.7 21.0 21.3 21.5 20.4 20.7 21.0 21.3 21.5
,	1.5	00	00000	22.4.2 24.7 24.7 24.7	00000 04000	00000	20.1
	; , ,	60	00000	04440 0.00	2000 2000 2000 2000 2000	4444 4444 4444 4444 4444 4444 4444 4444 4444	19.7 19.7
		00	00000	0 20 20 20 20 20 30	0.00 0.00 0.00 0.00 0.00	7 4 M M M	19.04 19.04
BET	1.2	0 -	00000	0 20 21 20 21 20 21 21	20000 00000 04040	9 8 8 8 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9	41 44 44 80 80 80 80 80 80
	++	-		000,0	4 0 & 0 \$\$\text{\$\ext{\$\text{\$\	4 4 4 10 10 0 4 4 10 10	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
	1.0		00000	233000	9 8 8 8 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9	17.9 17.8 17.8	17°7 17°7 17°7
	6.0		00000	24.2	19 19 17 17 19 17	17.2 17.2 17.2 17.1	17.1 17.0 17.0
	0.8	-		00000	49 47 47 50 50 70 70	444 6044 6044 6044	46.4 46.4
	6.7	6 1 • •		00000	9 0 6 H 0 0	$\begin{array}{c} 1 & 1 & 1 & 1 & 1 \\ 1 & 1 & 1 & 1 \\ 1 & 1 & 1 & 1 \\ 2 & 1 & 1 & 1 \\ 2 & 1 & 1 & 1 \\ 2 & 1 & 1 & 1 \\ \end{array}$	0 5 5 5 4 4 4 4 4 4
	9.0				15.00 15.00 15.00	44444 0 V O W 4	446
	0.5			•••••	0 0 4 4 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	44444 88888 68480	888 888 844
رن ارن	∢	00 0				2222 2265 2269	

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.72

								80 ₽		(
A T	1 K,	9 .	0.7	0.8	0	1.0	•		1.3	4.	1.5	40	1.7	44 8	4.9	2.0	
4.4	0		0	0 .	. 0		0.	0.	0	0	9		0.	29.	•	25.	
								C		0	c	9	4	3	n	3	
								0	0	5	P)	3	S	è	6	Ċ	
	0						0	24.7	22.8	22.2	22.0	22.0	22.0	22,1	22.2	22.3	
					•	5	2	quel	*	-	-	-	+-	;	÷	3	
					21.9			•	0	0	0	-	+	+	**	8	
			7		0	0	6	0	0	0	0	-	-4	*	-	÷	
	0	-	00	ac	80	20	6	6	•	0	0	0	+	-1	+	+	
	x.	7	1		80	18.5	18.9	19.4	19.8	20.1	20.5	20.8	21.1	21.3	21.6	21.8	
	3.	r.	6	7	7.	60	60	6	0	0	•	0	7	1	-1	·	
	14.5	15.3	16.1		17.5	00	œ	•	•	ပ်	0	0.	1.	+	-	-	
	4	5	5	Ś	_	30	80	6	Ö	6	•	0	•	+	-	÷	
	2		15.8	C	~	18.0	18.5	19.0	19.5	19.9	20.3	20.6	20.9	21.2	21.5		
	3	4	5	9	7.	7.	8	ó	6	6	0	0	0	+	÷	-	
		4	'n	ç	7	7	œ	0	6	ф.	Ö	0	0	+	+	·.	
	?	14.5	•	16.4		7	œ	6	6	5	C	0	0	,	7	₊	
30	•	4	5	\$	7	7.	αC	6	6	6	0	0	0	-1	*	•	
	-	14.5	15.5	16.4	•	17.8	18.4	19.0	19.4	19.8	20.5	20.6	20.9	21.5	21.4	21.7	
	ر پ	4	5		7	7.	80	œ	6	·	6	0	0	+	+		
	د	4	5	•	~	7.	8	æ	6	•	0	0	0	-	ء ج		
	∞	4	5	ċ	~	7	œ	œ	6	0	c ·	0	0	, 	.	- -1	
	ن. •	4	ري -	\$	7	7	00	œ	6	•	0	0	0	+1	-	-	
	δ,	4	Š	9	7	7	aC)	x 0	ŏ	6	c	0	0	+	•	+	
37	13.1	4 , 4	15.4	16.3	4. 7. 4. 1. 4.	17,8	18.4	18.9	19.4	19.8	20.5	80.6	20.9	21.2	21.4	21.7	
	~ `	4	r.	ć	7.	7	œ	oc	•	0			O	, H	-	H	

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BILK DENSITY #0.73

					:					1			(•	1 6	•
		¥ • 0	2 • 0	0 . 8	0.9	1.0	1.1	1.2	1.3	1.4	1 . 1 . 5.	1,6	1.7	80 :		2.0
141		ı			0.		0.0		0.			0.0	0	•	26.	R.
									C	· C	•	7	3	4	1	3
								•		,	•	. ~	, P	C	0	C
								•	= P	0 0		o c) (. כ	, ,
						0		ċ	•	7		,	·		,	
	c	٠ ت	· C	·	0	28.9	22.7	21.8	21 .s	21.4	21.5	21.6	21.8	22.0	22.1	22.5
_	0					H	o	0	0	0	+	÷	• •-i		2	2
				0	0	0	0	0		0	0	-	***	~ 1	-1	5
	C	4	œ	ď	80	6	0	6	0	0	0	;	1.	7	;	'n
	0	r-	7	7	8	90	6	6	6	0	0	50.6	•	-4	•	
	v.	·	vC	7	7	00	00	6	6	0	ċ	0	H	·	• •i	+
4	14.7	15.5	16.3	17.0	17.7	18.3	18.8	19.3	19.7	20.1	20.5	0		21.4	-1	÷
25	4	r.	·C	•	7	90	•	•	6	•	•	•	21.1	-4	21.6	21.9
	3	ις	iv.	Ġ	7.	80	œ	6	6	0	0	°	-	+	+	H
	∾,	7	5	9	7	œ	œ	5	6	0	0	0	•	,		H
	~	14.7	r.	16.6	7	80	Œ		٠ •	0	c	0	•	7	•	;
	13.4	•	15.7	•	17.3	•	œ	6	19.6	0		0	+		*-1	• - ⇒
	8	4	n,	\$	7	œ	œ	6	6	o,	0	0.	+	21.3		+4
	۶.	4	r.	9	~	8	00	6	6	。 0	c.	0	+	+1	٠ ټ	, ,
	*	4	r.	\$	7	7	. 8	6	6	0	6	0	• •	+	+	.
	٠,	4		16.5		7	18.0	0	19.5	20.0	20.4	20.7	21.0	+4		
44	13.2	14.5		•			о В	•	•		0	0.	•	-1	- -1	-
	~`	4	ur.	\$	7	7	œ	6	•	0	0	0	7	• ••	-1	+
16	13.2	1. 4 · 57	15.5	16.5	17.2	17.9	18.5	19.1	19.5	20.0	20.3	20.7	21.0	21.3	21.6	21.8
	~)	4	٦.	•	7.	7	œ	6	6		0	0	H	+	**	÷
	~	<	ı.	4	1	r	,	•			,					

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.74

	(!					1	1	BE 1	t 1	9 1 1	l I		1	,	1	1	
₹ <u>~</u>	0.5	9.0	0.7	30	6.0	1	4.4	1.2		약 - 1 - 1		-	1.7	1.8		2	6
: *		l 	1		0	0		0.	. 0	. 0			0		•	26.	
							C		•	0	6	6	30	*	4	2	0
	0		0					0	0		24.7	23.8	23.3	23.2	23.1	23	-
							0		3	2	2	2	∾	2	2	5	2
					C		3	?	•	÷	+	**	8	2	~	ċ	10
						21.5	0	0	0	-1	•1	+	+	-4	5	8	m
				-	0	•	0	0		0	-	+	+	•	è	8	8
		0	6	18.8	18.9	19.2	19.5	19.9	20.2	20.6	20.9	21.2	21.4	21.7	21.9	22.	~
	8	7	7	7	œ	8	6	6	9		•	+	•	+	-	3	
	6.		9	7	8	80	6	•	0	0		1	+	+	+	è	- 4
	14.9	5.	•	7	7.	60	6	0	6	0	0	+	-	-	-	8	0
25	•	•	ς.	•	7.	-	18.9	19.4	19.8		0	0	÷	21.5		ŝ	0
	4	15.1	16.0	16.9	17.6	•	æ	0	•		0	G	-	+	41		0
	3.	4	5	•	7	œ	æ	ò	6	0	•	0	+	+	+	ô	0
	3	<i>4</i> .	3	÷	7	œ	œ	·	6	Ġ	0	0	+	.	+1	çi Ci	0
	13.5	4	5	ç	7.	œ	œ	6	•	0	20.5	50.9	•	•	1.	~	0
	~	4	5	¢	7	9 0	œ	6	6	0	0	0		-	-	8	0
	13.4	14.7	15.7	16.6	17.4	18.1	18.7	19.2	19.7	20.1	20.5	20.9	21.2	21.5	21.7	22.	0
	نم •	4	'n	ċ	7	æ	œ	6	ċ.	0	0	0		+1	-	2	_
	~;	4	5	\$	7	8	œ	6	0	0	0	0	+	;	+	Š	0
	.;	4	r.	9	7.	00	Œ	6	·	0	C	0		 ++	-	2	_
	~	4	5	ç	7	æ	œ	0	•	0	0	0	•	• •-4	-1	2	6
	3.	4	5.	۶.	7.	00	80	•	6	0	•	0	-	+	1.	2	0
37	13.3	14.6	15.6	16.6	17.4	18.0	18.6	19.2	19.7	20.1	20.5	20.8	21.2	21.5	21.7	22.	0
	· ·	4	r.	ċ	7.	æ	œ	6	6	0	c	0.	-	-	1.	5	6



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.75

								BEŢ	ļ			,	į.		0	8	•
4 -	0 7 1	0 - 0	0.7	6.	0.9	1.0	- -	1.2	(4 (1.4	1.5		1.7	00 I	1.9	2.	0
। 4 । ।	l •	1		ł		0 .	i •	•	0	0.	1 0		•	0	28	56	S
										c	c	۲	4	ď	4	7	
		: c	•	•		o c			• •		2 C	. 4	0 P P P P P P P P P P P P P P P P P P P	4 7 6	2 2	2.4	1 1
						- •		•	•	• •	, (• o c	•) (0	
						·	0		4	;			,		•	4	
					0	•	•	•		.	'n	·	2	2	2	2	
0	٠ ن	0		0	26.2	-	-	-1	+	-1	•	.	·	2	·	2	
			_ •	~	0	0	ċ	<u>_</u>		0		-		•	2	~	4
		0		. 0	6	0	0	0	0	0	-	+	-1	+	2	0	-
	•	00	7	œ	8	6	5	6	0	0	0	+	-1	-	~	2	
	9	· •	7	7 .	00	80	6	6	0	0	0	+	-	+	2	2	
	15 2	15.9	16.6	17.3	19.0	18.6	19.1	19.6	20.0	20.4	20.8	21.1	21.4	21.7	22.0	23.	
C	4	S.	9	7	7	•	0	0	0	0	0			•	+	C	
	4	r.	5	7	7	8	6	0	0	0	c	٠,	-1	·	•	N	-
	~	5	9	9	7	80	00	6	6	20.3	20.7	۰	•	21.6	21.9	22.	
	~	ır.	·c	·	7	æ	α.	ó	•	0	0	+	ب	•	-	2	-
	13.6	•	15.9	16.8	17.6	10.3	18.8	19.4	19.8	\Box	c	21.0	21.3		+	2	
605 247	~5	শ্ব	5	•	7.	80	œ	0.	6	0	0	+	-	-	-	O	ਜ਼
	13.5	4		16.7	17.5	•	18.8	19.3	-	20.3	20.6			21.6	21.9	22.	
	∾.	4	5		7	8	α	6	6	0		+	-	-4	*	2	
	×	4	5	•	7	80	8	6	6	0	•	₩.	• ₩	+	+	2	
	•	14.7		\$	7	18.2	•	•		0	•		•t	•	÷	2	4
35	%	4	5	•	7.	•	60	0	6		c	-	+	+	-	2	
	3	4	5.	\$	7.	80	80	0	6	0	න	· +1	+	+	1.	2	
37	13.4	14.7	15.8	16.7	17.5	18.2	18.8	19.3	19.8	20.5	20.6	21.0	21.3	21.6	21.9	25	
	~	4	S	\$	7.	80	œ	•	6	0	0	-	+	+4	-	~	

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.76

	1			i	1	Ì		9E		0 0 0		! !	,		0 8 0	1	
2 X C	0.5	9.0	7	0.8	0.0	1.0	1.1	1.2	1.3	+	1.5	1.6)			0
- -		•	1		0	0	0	0	0	0	0)	0			1
										c	C	0	7	S	**	4	10
	0				. 0	. 0	. 0	0		37.3	26.1	24.6	24.0	23.7	23.6	23.	10
								0	•	3	3	M.	2	2	3	7	-
						•	•		N	5	?	5	5	~	2	2	6 0
	0				31.3		÷	+	-	÷	-	-	3	2	~	C	^
				M2	0	5	0	0	0	-	•	-	-	2	~	N	10
		C	=	6	6	•	•	0	0	0	-	+	-	2	2	~	2
		0	œ	80	80	•	•	0	0	0	-	4	+	-	~	C	*
	7	16.9	17.3	17.8	•	18.9	19.4	19.8	20.3	20.6	21.0	21.3	21.6	21.9	22.1	22.	*
	15.4	9	ć	7	œ	00	6	0	ċ	0	0	+	•	H	3	2	4
	4	Š	•	7	80	80	•	6	0	c C	0	+	•		8	Š	۲n
	4		16.3	17.1	•	18.5		19.6	20.1	0	20.9	21.2		21.8	22.1	22.	1 20
	4	'n		7.	7.	9	•	6	0	0	0	+	.	+	2	2	m
	3	5	ė.	7	7	8	°.	6	0	0	0	+		+	~	2	₽ ∕)
	13.8		3	•	Ĺ	00	6	6	0	20.4	0	-		7	2	2	m
30	8	4	•	\$	7,	80	0	6	0		c	4-4	+	+	2	c	ĸ
	13.6	14.9	15.9	16.9	17.6	18.3	18.9	19.5	20.0	20.4	20.8	21.1	21.5	21.8	22.0	25.	~ 3
	~·	4	S.	. 9	7.	00	œ	6	0	0	0	• •4	-4	,	3	٠	(M)
	3.	4	5	•	7	8	œ	6	٠ •		0	.	+	+	2	ò	m
	•	4	5	. 9	7	60	œ	6	6	0	•		<u>.</u>	+	~	2	m
	3.	4	r.	9	7	Œ.	ď	6	0	0	0	<u>.</u>	+	+	3	2	m
36	13.5	14.8	15.9	16.8	17.6	18.3	18.0	16.4	10.0	20,4	20.8	21.1	21.4	21.7	22.0	25.	m
	8	4	س	÷	7.	œ	œ	•	ф •	0	0	-		·-i	5	5	2
	٠ <u>٠</u>	4	ľ.	•	7.	•	a	•	6	0	0		+		2	٥.	M)



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY 20.77

								867						i		1	!
X	0.5	9.0	0.7	0.8		1.0	1.1	1.2	1 PC)	1 4	4.5	1.6	1.7	4	6	2	6
4		! .	l I •	1		0.	0.		. 0	1 0	0 .				33.	27	0.
									0		C	0	©	•	5	4	
								•	0	0		5	4	4	P)	3	
						0	0	0	9	4	5	3	₩,	3	*	2	
			_ _			•	26.8	23.5	22.7		22.4	22.5	22.6	22.7	23.8	23.	
	<u>.</u>	·	· 0	<u>.</u>	0.	3	5	-	-		+	8	ů	2	2	\sim	
			<u> </u>	10	-	0	0	0	-	+	₩.	+4	?	N	~	~	7
		·	-	0	-	•	0	0	20.7	21.1	-	21.6	21.9	N	22.4	22.	
		6	Œ	œ	œ	٥.	ó	0	ċ	0	•	+	+	5	5	~	
	Φ	7	7	8	œ	6	0	0	0	0	-	-	*1	'n	2	0	
	15.7	16.3		•		18.9	19.4	19.9	0	0	21.1	1.		•	0	2	
25	•	ď	ý	7	00	00	0	0		0	•	+	+	~	C	~	~
	4	5	9	١.	æ	30	·	0	0	0	•	+	+	-1	2	\sim	
	প	-	16.3	17.2	1	•	Š		20.2	20.6	21.0			21.9	22.2	22.	
	4	5	v.	7	7	œ.	•	ò	0	0	•	٠ ۲	-1	+	<u>٠</u>	~	
	δ.		ć	7.	17.8	18.5	19.1	0	0	0.	ċ		+	7	č	2	
	~) •	ι.	9	7	7	ω.	6	۰	0	0	0	+4	4	+	2	2	
	₩.	ς.	\$	7	7.	•	19.1		20.1	0	20.9				22.2	22.	
	\$.	5	9	7	7	œ	·	0	ċ	0	ċ	.	.	-+	3	2	
	5	4	9	9	7	æ	Ġ	6		0		+	₩	-4	2	~	
	13.6		16.0	16.9	17.7	18.4	•	•	0	20.5	C		4		0		
	~)·	4	\$	ç	7	90	0	6	0	0	0	-4	1	•	~	C	
	~;	4	\$	\$	7,	00	0	6	j.	0	0	-	+	·-4	2	2	
37	13.6	14.9	16.0	16.9	17.7	18.4	10.0	19.5	20.1	20.5	20.9	21.3	21.6	21.9	22.2	22.	
	3	4	9	\$	7	80	•	6	0	0	c	-	-	+	2	2	

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.78

•	2.0	•	6 4 8 8 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	000000 00000	00000 0000 0000	00000 00000	9999
1	6	0	6440 80000	V 0 0 4 4 0 0 0 0 0	4 4 4 W W 0 0 0 0 0 0	88888 88888	0000 0000
1	-	4	20000 20000	2222	222	222	2222
	# F	•	00000 04000 0000	00000 00000 40000	2222	2222 2222 2222 2220 2220	222.0
) 1		0.	20 4	222.22.22.22.22.22.22.22.22.22.22.22.22	21.22 21.38 8.12 8.13 8.13	21.7 21.7 21.7 21.7	21.7 21.7 21.7 21.7
	1.6	. 0		222.0 21.3 21.7 21.6	21122 21122 21124 2114	10000 11000 4444	21.2 4.15 4.15 4.15
!	•	0		21.5 21.5 21.5 21.5	24.2 24.1 24.1 24.1 1.1 24.1	2221.1.122.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	21.0 21.0 21.0
				2011 2011 2000 2000 2000	20.8 20.7 20.7 20.7	20.7 20.7 20.7 20.6	20.0 20.0 20.6
		0	0. 0. 27.5 23.1 21.8	21.3 20.9 20.7 20.6 20.5	0000 0000 0000 0000 0000 0000	200.02	200.50
₽E -	l e1		0.0 0.0 0.1.2 0.1.9	21.1 20.6 20.3 20.1	19.9 19.9 19.8 19.8	19.8 19.7 19.7 19.7	19.7 19.7 19.7
1	1.1	0	00000 0000 0000	21.0 20.3 19.9 19.7	4	119.22	19.2 19.2 19.1
1	1.0	0		21.1 20.1 29.5 19.2	18.9 18.7 18.7 18.7	18.6 18.6 18.6 18.6	20 00 00 00 00 00 00 00 00 00 00 00 00 0
!	0.9	0.	••••	21,9 20.0 19.1 18,7	18.3 18.1 18.1 17.9	0,711 0,00 0,71 0,00 8	17.8 17.8 17.8
 	0.0	. 0		30.1 20.1 18.9 17.8	4.7.1 47.3 17.3 17.2	17.1 17.1 17.1 17.0	17.0 17.0 17.0
	0.7		0.000	18.9 17.7 17.1	4 1 1 1 1 1 1 1 2 2 3 3 4 3 W	22.4.4. 9.4.4.4. 22.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4	1.65 1.65 1.65 1.1.1
	9.0			20 20 17 16	10.00 10.00	11.55 11.05 11.05	15.0 15.0 15.0
	0.5			0. 0. 18.9	4 4 4 4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6	13.7 13.7	13.7 15.7 15.7
	A Z	• • • • • • • • • • • • • • • • • • •			20202		



MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.79

								BET					1	1		•
XC		9	0.7	0.8	0.0		1.1	1.2	1.3	4	1.5	•	1.7	1.8		5
1 4 1	ý		! • •	•		0		0	0	0		0 .			•	0
						C					«	C	2	7	•	5
						c		.		•		9 V	נענ			4
						> (5	• •	• > c	> L			,		•	-
						0	•	0		0	•	?	•	2	• •	2 1
	0	0	ċ	<u>.</u>	0	•	38.0	24.7	23.4	23.0	55.9	22.9	23.0	23.1	23.5	23.
			0			Ŋ.	8	8	5	O	?	2	2	٠	•	2
			C		2	24.4		÷	÷	-	-	2	2	8	ò	M
		•	9	0	0	0	0	0	+	+	-	8	2	C	2	~
		~	0	0	6	6	0	20.5	0	1.	-	+		22.4	22.6	22.
	Ē	7	8	æ	00	6	0	0	0	;	+	-	2	0	2	\sim
	16.3	16.7	17.3	18.0		6	19.7	•	20.6	21.0	4.4	21.7	22.0	ò	~	
	5.	· co	~	~	•	•	0	0	0	0	•	-	2	ς.	2	N
	4	5.	9	7.	ф Ф	00	0	0		0,	•	H		٠ د	~	2
	4	r.	9	7.	œ	0	•	0	0		.				•	22.
	4	ι.	9	7	ъ Э	œ	5	0	0	0	.	+		8	2	\sim
	14.1	15.3	16.4	17.3	18.1		19.4	19.9	•		21.2	+		2	C!	2
	4	٠ لا	¢	7	σο •	•	о·	0	0	0	•	H		ç,	2	2
	٤.	r.	9	,	œ	œ	6	6	0	0	•	-1	**	2	è	\sim
	٠.		8	7	8	60	6	6	0	0	-i	e-d	+	2	2	~
	~	5	9	7.	80	œ	6		0		21.2		٠ •	22.2	22,5	2
4	13.8	15.1	16.2	17.1	18.0		19.3		20.3	c)	-	21.5	21.9	2	2	22.
35	M)	5	ç	7.	7	æ	0	6	0	0	-	21,5	-4	2	2	2
	×:	5	9	7.	7	00	•	0,	ċ	0	*	, H	1	i	(H	2
	M)	r.	9	7.	7	æ	0	6	0	0	•	-		2	2	C
	15.7	15.1	16.2	17.1	17.9	18.6	19.3	19.8	20.3	20.8	21.2	-	21.9	22.2	22.5	22.

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

1.32 (.52 3.52 2.17 2.14 3.14

YARN BULK DENSITY = 0.80

								BEŢ							•	
J X	0.5	9.0	0.7	60	0.0	1.0	1.1	1 7 1	1.3	4	1.5	. 6		1 00	1.9	2 . 0
! !	1	1	-			0.	0	. 0	0	0	. 6			0	0	•
										0	6	0		60	•	5
									0	0	2	6	5	+	*	+
	0	0	0	0	0,		0	0	2	•		4	23.9	23.8	23.8	23.9
						0	C 3	'n	3	3	20	M	3	2	3	3
19		0		9.		•	23.3	22.5	22.3	2	2	22.6	~	G	F	8
				0	3	-1			*4	∵-4	~	2	2	2	P 7	M
		<u> </u>	•	*	0	0	0	+	*	-1	-1	2	2	N	•	3
	•	5	6	0	6	6	•	0		-	-	2	2	N	2	3
	2	00	6	8	6	0	ċ	0	0	-	+	+	2	'n	2	3
	16.7	16.9	17.5	18.1	18.7	•	19.8	20.3	•	21.1	21.5	21.8	22.2	22.4	22.7	22.9
5	5.	•	7	7	80	0	•	0	0	-	-	+	N	c.	2	2
	4	n,	9	7.	დ	•	6	0	Ċ.	+	H	+	<u>،</u>	Ġ	0	5
	4.	15.7	16.7	13.6	18.3	6	6	0	0		•	4	2		2	C
	4		·	7	8	60	6	0	0	+	+	1	2	8	2	2
	14.2	'n	-	7	•		0	20.0		-1		21,7	22.0		22.6	•
	4	ı,	\$	7	00	30	6	0	نے	0	-1	-4	c,	C,	(C)	2
	4	5	S	7	. 69	60	6	0	0	0	+		2	2	2	?
	4	5	ç	7	. 69	00	6	0	0	0	-1	+	2	8	ď	S
	~)°	s.	9	7	60	æ	•	ů.	0	0	•		2	~	2	· v
4.	13.9	15.2	16.3	17.3	18.1	18.8	19.4	20.0	20.5	20.9	21.3	21.7	22.0	22.3	22.6	22.9
	٠,	5	•	7	æ	60	6	0		0	•	21.7	8	~·	2	C
	3.	5	. 9	7.	x	60	•	0	0	0	-	• •=	€	2	2	2
37	13.8	15.2	16.3	17.2	18.0	•	19.4	20.0	20.5	20.9	21.3	,	22.0	22.3	22.6	22.9
	•	r.	ç	7	60	æ	•	0	0	0	-	**	č	2	~	Ci



MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =0.81

		1	1			1	1	1 1			1		1	•	ŧ	•
	0.5	9.0	0.7	D . A	0.0	1.0	1.1	-	1.3	4.	v.	4.6	1.7	÷ ;		2.0
4 4		1 =			0	0		0.	0	0)	0	0		33
											-	0	•	•	7.	9
						C				, _C	-	1		5	*	4
				 : c		12		0	. 0		K	4	4	4	24.0	24.1
						0		9	4	~	m)	~	m)	1 2		m)
	0	· c	0	. 0	. 0	_	23.8	22.9	22.6	5	22.6	22.8	55.9		÷2	m
	c			•	4	•		4	•	2	C	~	2	2	*	رم رما
					· _			• •	•	, ,				2	P)	m
			. =	0 0						, ,		. ~	2	3	0	m
	4	α	000	ac	0	0			, ,	+		~	~	2	2	3
	17.1	17.2	17.7	18.3	18.9	6	20.0	20.5	20.9	21.3	21.7	22,0	22.3	22.6	22.8	•
25	ر.	ς.	7	90	œ	0	6	0	G		•	.	~	2	•	3
	رب	· C	7	7	٠	0	0	0	0	+	-	+	8	8	2	نما •
	4	15.8	16.8	17.7	Ð	•	6		0	21.1	21.5	21.9	22.2	25.5	22.8	•
	4	υ.	ò.	7.	80	0	6	0	0	+	+	-	~	٠ ر	2	m)
	14.3	5	·		•	19.0	19.6	0	20.6	+	- i	+	2	0	8	m
	4	r.	ć	7	80	•	6	0		+-1	•	₩.	2	~	2	3
	4	ν.	·	7	80	œ	6	0	0	+	-	-	i	N	2	3
		15.4	16.5	17.4	18.2	x:	19.6	20.1	20.6	21.1	21.5	21.8	22.2	22.5	22.7	•
	4	3		7.	8	æ	•	0	0	+	+	+	Ś	2	5	m
		5.	è	7.	8	00	O	0	·	<u>.</u>	-	+	2	8	2	23.0
	4	r.	· c	7	00	•	0	0	0	÷	•	+	C	2	2	رما د
	3	2	· c	7	8	8	0	0	Ö	-4	-1	-:	2	2	2	3
3.7	15.9	15.3	16.4	17.3	18.2	18.9	19.5	20.1	20.6	21.0	21.4	21.8	22.1	25.5	22.7	23.0
	*	5	\$	7	œ	x 0	0	0	0	+		-	2	, N	2	m

YARN BULK DENSITY = 0.82

0.88.0	•	, ,	!		1.4	ι.	•	-	•	0.	•	,
1 1 1 1		- 1	1		1 1 5							
0 .0		.0	0		. 0	•	0.	0.	. 0	•	38.9	
0	0		•			•	0.	0	•	7.6	•	
	0		•	•	•	•	ъ.	٥,	5.	5.1	•	
•	0		0.		7.	₽.	4.	•	4	24.2	٠	
	0	6	7.8	4.8	3	m	ъ	κ,	3	3,7	•	
	M	24.4	23.2	0		22.8	23.0	2	m.	3.5	23.6	
25	5 22.	~	6.	2.0	2	2	2	2	ь.	5	3	
5.7.21	200	, , +	M.	4.6			~	2	~	5	5	
0.0.0	700	, .			; ;	2	2	8	8	P	3	
9.0 19	10.		7.0	1.1	*	.	2	2	5	5	ъ.	
8.5 19	1 19.	6	9.0	1.0	+	7	5	5	5	5	3	
	•		1	•	,	,	(c	,	•	
8.2 18	8 19.	•	0.5	6.0	;		· ·	, N	i	; ;	;	
7.9 18	7 19.	.	♦.0	6.0	+	.	2	2	, i	, N	÷ .	
7.8 18	6 19.	•	4.0	0.8	;	+i	۲.	2	÷	N	ن	
7.7 18	5 19.	Ġ.	0.3	8.0	+	.	ς.	۶.	2	2	٠ ن	
7.6 18	4 19.	6	0.3	8.0		+	5	٥.	2	2	8	
7 4 4 8	0	0	Y	4	•		2	2	2	~	m	
7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	10.			7.0	-		1	2	2	~	ъ.	
7	10		, ,	7	1 -	•	, ¿	ä	2	~	3	
7.5 18	0 1			0.7			2	?	2	~	3	
7.5 18	3 19.	•	0.2	0.7	-	+	+	8	5	~ ∾	ъ	
7.5 18	3 19.	•	0.5	0.7	+	+	+	3	8	8	m I	
7.5 18	3 19.	6	0.5	0.7	+	+	+	5	N	2	٠ ا	
7.4 18	3 19.	6	0.5	0.7	+	+	;	٠ ن	~ ·	÷ (, ,	
7.4 18	3 19.	6	0.5	0.7	+	;	+4	<u>ن</u>	5	2	,	
	\mathbf{v}			2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	22.0 21.9 22.0 21.3 21.6 20.3 20.6 21.1 21.3 21.6 21.1 21.3 21.6 21.1 21.3 21.6 20.3 20.7 21.1 20.9 22.0 2 20.7 21.1 20.9 20.4 20.9 20.9 20.9 20.9 20.9 20.9 20.9 20.9	6 22.0 21.9 22.0 22.0 22.0 22.0 21.3 21.6 21.3 20.6 21.0 21.3 21.6 21.0 21.3 20.6 20.3 20.6 21.0 21.3 20.6 21.0 21.3 20.6 20.3 20.6 21.0 21.3 20.6 20.3 20.8 21.1 19.7 20.3 20.8 21.1 19.7 20.2 20.3 20.8 21.1 19.7 20.2 20.3 20.8 21.0 19.7 20.2 20.7 21.0 19.6 20.2 20.7 21.0 19.6 20.2 20.7 21.0 19.6 20.2 20.7 21.0 19.6 20.2 20.7 21.0 19.6 20.2 20.7 21.0 19.6 20.2 20.7 21.0 19.6 20.2 20.7 21.0 19.6 20.2 20.7 21.0 19.6 20.2 20.7 21.0 19.6 20.2 20.7 21.0 19.6 20.2 20.7 21.0 19.6 20.2 20.7 21.0 19.6 20.2 20.7 21.0 19.6 20.2 20.7 21.0 19.6 20.2 20.7 21.0 19.6 20.2 20.7 21.0 19.6 20.2 20.7 21.0 20.7 20.7 20.7 21.0 20.7 20.7 20.7 20.7 20.7 20.7 20.7 20	.6 22.0 21.9 22.0 22.2 22. .0 21.4 21.3 21.6 21.9 22. .3 20.6 21.0 21.3 21.7 22. .9 20.3 20.7 21.1 21.5 21. .6 20.1 20.6 21.0 21.4 21. .2 19.8 20.4 20.9 21.4 21. .2 19.8 20.4 20.9 21.2 21. .1 19.7 20.3 20.8 21.3 21. .1 19.7 20.2 20.7 21.2 21. .0 19.6 20.2 20.7 21.2 21. .0 19.6 20.2 20.7 21.2 21. .0 19.6 20.2 20.7 21.2 21.	.6 22.0 21.9 22.0 22.2 22.4 22.3 20.6 21.0 21.9 22.2 22.2 22.2 22.3 20.6 21.0 21.3 21.7 22.0 22.2 22.3 20.6 21.0 21.3 21.7 22.0 22.3 20.3 20.7 21.1 21.5 21.9 22.3 22.3 20.3 20.4 20.9 21.4 21.7 22.3 19.8 20.4 20.9 21.4 21.7 22.3 19.8 20.4 20.9 21.3 21.7 22.3 19.8 20.3 20.8 21.3 21.7 22.3 19.8 20.3 20.8 21.3 21.7 22.3 19.9 20.3 20.8 21.2 21.6 22.3 19.7 20.2 20.7 21.2 21.6 22.3 19.7 20.2 20.7 21.2 21.6 22.3 19.6 20.2 20.7 21.2 21.6 21.0 19.6 20.2 20.7 21.2 21.6 21.0 19.6 20.2 20.7 21.2 21.6 21.0 19.6 20.2 20.7 21.2 21.6 21.0 19.6 20.2 20.7 21.2 21.6 21.0 19.6 20.2 20.7 21.2 21.6 21.0 19.6 20.2 20.7 21.2 21.6 21.0 19.6 20.2 20.7 21.2 21.6 21.0 19.6 20.2 20.7 21.2 21.6 21.0 21.0 19.6 20.2 20.7 21.2 21.6 21.0 21.0 21.0 21.0 21.0 21.0 21.0 21.0	.6 22.0 21.9 22.0 22.2 22.4 22.6 22.3 20.6 21.0 21.3 21.6 21.9 22.2 22.4 22.5 22.4 22.5 3 22.3 20.5 21.0 21.3 21.7 22.0 22.3 22.2 22.4 22.5 20.3 20.3 20.5 21.0 21.3 21.7 22.0 22.2 22.5 22.5 21.0 20.3 20.5 21.0 21.4 21.8 22.1 22.5 21.6 20.4 20.8 21.3 21.7 22.0 22.3 22.3 19.8 20.4 20.8 21.3 21.7 22.0 22.3 21.9 20.3 20.8 21.2 21.6 22.0 22.0 22.3 19.8 20.3 20.8 21.2 21.6 22.0 22.0 22.0 19.7 20.2 20.7 21.2 21.6 22.0 22.0 22.0 19.7 20.2 20.7 21.2 21.6 22.0 22.0 22.0 19.7 20.2 20.7 21.2 21.6 21.9 22.0 19.6 20.2 20.7 21.2 21.6 21.9 22.0 19.6 20.2 20.7 21.2 21.6 21.9 22.0 19.6 20.2 20.7 21.2 21.6 21.9 22.0 19.6 20.2 20.7 21.2 21.6 21.9 22.0 19.6 20.2 20.7 21.2 21.6 21.9 22.0 19.6 20.2 20.7 21.2 21.6 21.9 22.0 19.6 20.2 20.7 21.2 21.6 21.9 22.0 19.6 20.2 20.7 21.2 21.6 21.9 22.0 19.6 20.2 20.7 21.2 21.6 21.9 22.0 19.6 20.2 20.7 21.2 21.6 21.9 22.0 19.6 20.2 20.7 21.2 21.6 21.9 22.0 19.6 20.2 20.7 21.2 21.6 21.9 22.0 19.6 20.2 20.7 21.2 21.6 21.9 22.0 19.6 20.2 20.7 21.2 21.6 21.9 22.0 19.6 20.2 20.7 21.2 21.6 21.9 22.0 19.6 20.2 20.7 21.2 21.6 21.9 22.0 19.6 20.2 20.7 21.2 21.6 21.9 22.0 19.6 20.2 20.7 21.2 21.6 21.9 22.0 19.6 20.2 20.7 21.2 21.6 21.9 22.0 22.0 20.7 21.2 21.6 21.9 22.0 22.0 20.7 21.2 21.6 21.9 22.0 20.7 21.2 21.6 21.9 22.0 20.7 21.2 21.6 21.9 22.0 20.7 21.2 21.6 21.9 22.0 20.7 21.2 21.6 21.9 22.0 20.7 21.2 21.6 21.9 22.0 20.7 21.2 21.6 21.9 22.0 20.7 21.2 21.6 21.9 22.0 20.7 21.2 21.6 21.9 22.0 20.7 21.2 21.6 21.9 22.0 20.7 21.2 21.6 21.9 22.0 20.7 21.2 21.6 21.9 22.0 20.7 21.2 21.6 21.9 22.0 20.7 21.2 21.6 21.9 22.0 20.7 21.2 21.6 21.9 22.0 22.0 20.7 21.2 21.6 21.9 22.0 20.7 21.2 21.6 21.9 22.0 20.7 21.2 21.6 21.9 22.0 20.7 21.2 21.6 21.9 22.0 20.7 21.2 21.6 21.9 22.0 21.9 21.9 21.9 21.9 21.9 21.9 21.9 21.9	6 22.0 21.9 22.0 22.2 22.4 22.6 22.9 23. 20.6 21.0 21.3 21.6 21.9 22.2 22.4 22.7 22.7 22. 3 20.6 21.0 21.3 21.7 22.0 22.3 22.6 22.9 23. 20.6 21.0 21.3 21.7 22.0 22.3 22.6 22.5 22.6 22.3 20.7 21.1 21.5 21.9 22.2 22.2 22.5 22.6 22.3 20.6 20.1 21.4 21.8 22.1 22.4 22. 3 19.9 20.4 20.9 21.4 21.7 22.0 22.3 22.4 22. 2 19.8 20.4 20.9 21.3 21.7 22.0 22.3 22.3 22. 2 19.8 20.3 20.8 21.2 21.6 22.0 22.3 22.3 22. 2 19.8 20.3 20.8 21.2 21.6 22.0 22.3 22.3 22.0 19.7 20.2 20.7 21.2 21.6 22.0 22.3 22.3 22.0 19.7 20.2 20.7 21.2 21.6 22.0 22.3 22.3 22.0 19.7 20.2 20.7 21.2 21.6 22.0 22.3 22.3 22.0 19.6 20.2 20.7 21.2 21.6 21.9 22.3 22.3 22.0 19.6 20.2 20.7 21.2 21.6 21.9 22.3 22.3 22.0 19.6 20.2 20.7 21.2 21.6 21.9 22.3 22.3 22.0 19.6 20.2 20.7 21.2 21.6 21.9 22.3 22.3 22.0 19.6 20.2 20.7 21.2 21.6 21.9 22.3 22.3 22.0 19.6 20.2 20.7 21.2 21.6 21.9 22.3 22.3 22.0 19.6 20.2 20.7 21.2 21.6 21.9 22.3 22.3 22.0 19.6 20.2 20.7 21.2 21.6 21.9 22.3 22.3 22.0 19.6 20.2 20.7 21.2 21.6 21.9 22.3 22.3 22.3 22.0 20.7 21.2 21.6 21.9 22.3 22.3 22.3 22.3 22.3 22.3 22.3 22	6 22.0 21.9 22.0 22.2 22.4 22.6 22.9 23.1 23.3 20.6 21.3 21.6 21.9 22.2 22.2 22.4 22.7 22.9 23.1 23.2 20.5 21.3 21.6 21.9 22.2 22.2 22.4 22.7 22.9 23.2 20.5 21.0 21.3 21.7 22.0 22.3 22.6 22.8 23.0 20.3 20.6 21.0 21.4 21.5 21.9 22.1 22.4 22.7 23.0 22.9 20.4 20.5 20.9 21.4 21.7 22.1 22.4 22.7 23.0 21.9 20.4 20.9 21.4 21.7 22.0 22.3 22.6 22.9 22.9 21.3 21.7 22.0 22.3 22.6 22.9 21.3 21.7 22.0 22.3 22.6 22.9 21.3 21.7 22.0 22.3 22.6 22.9 21.3 21.5 21.6 22.0 22.3 22.6 22.9 21.3 21.5 21.6 22.0 22.3 22.6 22.9 21.3 20.7 21.2 21.6 22.0 22.3 22.6 22.9 21.9 20.7 21.2 21.6 22.0 22.3 22.6 22.9 20.9 20.7 21.2 21.6 22.0 22.3 22.6 22.9 20.9 20.7 21.2 21.6 22.0 22.3 22.6 22.9 20.9 20.7 21.2 21.6 21.9 22.3 22.6 22.9 20.9 20.7 21.2 21.6 21.9 22.3 22.6 22.9 20.9 20.7 21.2 21.6 21.9 22.3 22.6 22.9 20.9 20.7 21.2 21.6 21.9 22.3 22.6 22.9 20.9 20.7 21.2 21.6 21.9 22.3 22.6 22.9 20.9 20.7 21.2 21.6 21.9 22.3 22.6 22.9 20.9 20.7 21.2 21.6 21.9 22.3 22.6 22.9 20.9 20.7 21.2 21.6 21.9 22.3 22.6 22.9 20.9 20.7 21.2 21.6 21.9 22.3 22.6 22.9 20.9 20.9 20.7 21.2 21.6 21.9 22.3 22.6 22.9 22.9 22.9 22.9 22.9 22.9 22.9	6 22.0 21.9 22.0 22.2 22.4 22.6 22.9 23.1 23.3 23.0 21.2 21.3 21.5 21.9 22.2 22.4 22.7 22.9 23.1 23.2 23.2 23.2 20.6 21.0 21.3 21.7 22.0 22.3 22.6 22.9 23.1 23.2 23.2 20.6 21.0 21.1 21.5 21.9 22.2 22.5 22.6 22.8 23.1 23.0 20.3 20.3 20.7 21.1 21.5 21.9 22.2 22.5 22.5 22.6 23.0 23.0 23.0 20.3 20.6 21.0 21.4 21.8 22.1 22.4 22.7 23.0 23.0 23.0 20.4 20.9 21.4 21.7 22.0 22.4 22.7 23.0 23.0 23.0 20.4 20.9 21.3 21.7 22.0 22.4 22.7 23.0 23.0 23.0 20.4 20.9 21.3 21.7 22.0 22.3 22.6 22.9 23.0 20.4 20.3 20.8 21.2 21.6 22.0 22.3 22.6 22.9 23.0 19.7 20.2 20.7 21.2 21.6 22.0 22.3 22.6 22.9 23.0 19.7 20.2 20.7 21.2 21.6 22.0 22.3 22.6 22.9 23.0 19.7 20.2 20.7 21.2 21.6 22.0 22.3 22.6 22.9 23.0 19.7 20.2 20.7 21.2 21.6 21.9 22.3 22.6 22.9 23.0 19.6 20.2 20.7 21.2 21.6 21.9 22.3 22.6 22.9 23.0 19.6 20.2 20.7 21.2 21.6 21.9 22.3 22.6 22.9 23.0 19.6 20.2 20.7 21.2 21.6 21.9 22.3 22.6 22.9 23.0 19.6 20.2 20.7 21.2 21.6 21.9 22.3 22.6 22.9 23.0 19.6 20.2 20.7 21.2 21.6 21.9 22.3 22.6 22.9 23.0 19.6 20.2 20.7 21.2 21.6 21.9 22.3 22.6 22.9 23.0 19.6 20.2 20.7 21.2 21.6 21.9 22.3 22.6 22.9 23.0 19.6 20.2 20.7 21.2 21.6 21.9 22.3 22.6 22.9 23.0 23.0 22.9 23.0 20.2 20.7 21.2 21.6 21.9 22.3 22.6 22.9 23.0 23.0 22.9 23.0 22.9 23.0 22.9 23.0 22.9 23.0 22.9 23.0 22.9 23.0 22.9 23.0 22.9 22.9 23.0 22.9 22.9 23.0 22.9 22.9 22.9 22.9 22.9 22.9 22.9 22

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 5.83

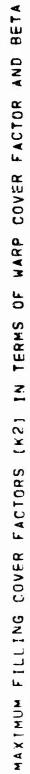
								9E -		ĺ				1		1	
スス	0.5	9.0	0.7	0 . 8	C)		1.1	1.2	1.3	4		1.6	1.7	1.8	6	2.0	, ,
4	: =	! ! •			0.	0.		0		.0	6	.0		0	9	0	
											•	0	0	2	8	•	
										0	0	6	9	5	5	5.	
	0	0	0.	0	0	0.	0.	0	0	28.8	26.0	25.0	24.7	24.5	24.4	24.4	
							0			4	, ,	3	m)	2	3	4	
	• 0	0		0			25.1	3.	,	3	M	3	m	m	.	m	
					7	M)	8	<u>۰</u>	~	8	2	· c	62	3	3	3	
			ت	3	+	-	-	+	+	2	2	2	2	5	2	3	
			4-4	0		0		21.1	21.5			22.4		23.0	23.5	•	
	0	•	•	6	•	0	0	0	•-I	+4	2	ò	5	2	3	3	
	18.2	17.7	18.1	18.6		6	20.3	0	÷.	+	•	0		•	*	3	
25	9	9	7	60	6	•	0	0	÷	•	- -	2	8	2	m	M	
	5	16.4	1	18.1	18.8	•	•	20.5	21.0	44		22,2	22.5	25.8	23.1	23,3	
	a,	ċ	7	7	œ	ò	0	ô	÷	+		?	~	'n	٠,	N 3	
	4	٠.	•	. '	8	•	•	0	。 0	+	+	0	٠ د	'n	٠ درو	3	
	14.5	č.	4	7.	•	19.3	19.9	0	•	-4		2	8	٠ د	M	ы Н	
	4	'n	•	7	80	0	6	0	0	-	•	Ç	~	~	10	M	
	4	15.6	16.7	17.7	18.5		19.8	20.4	50.9	21.3		22.1	22.4	.2.7	23.0	23.3	
	4	1	9	7.	œ.	6	0	0	•	, H	•	2	2	?		3	
	4	r.	¢	7	80	6	6	0	0	7	-	ò	2	٠ ن	M	٠.	
4 10		r.	ç	7	•		0	0	0	+	. 4	0	2	5	P	M	
	4	5	¢	7.	60	0	6	0		+	-	~	•	N	20	3	
	4	S.	•	7	8	6	•			-1	+	2	N	2	8	3	
	14.1	15.5	16.6	17.6	18.4	19.1	19.8	20.3	20.8	21.3	21.7	22.1	22.4	22.7	23.0	23.3	
	4.	ت	·c	7.	8	6	6	0	•	+	+1	8	2	å	•	3	



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSTTY #0.84

A S								P.									
FACTOR (K1)				-		1 +	1 (4	1.2	1 🕶	4	1.5	1.6	1 🕶	1.8	•	2.0	•
1 4		.0	0	0	0	0		. 0	0	-				6		. 0	•
		c											0.	5	0	7	
	0	0			0		0	0	0	0		31.3	27.5	26.3	25.7	25.4	
		0						0	0			S	4	*	4	÷	
		c c							5	+	*	4	4	4	4	+	
	0	ċ						4	•	3	3	ι, ,	, M	3	3	+	
					+	M 3	è	~	2	CV	~	•	67	M	•	M	
			0	5	å	+	•	+	8	2	?	2	3	3	3	٠ دم	
		C	2			0		21.3	*		22.3	2	2	23.1	M	3	
	0	ċ	0	6	6	0	0	ه نسپ	-	+	'n	2	2	3	3	3	
	18.9	18.0	18.3	18.8		19.9	0	0	21.3	-	3	22.4	22.7	3		•	
	,	1	1		((•	(,	,	•	c	(,	۲	
	c :	•	•	xo (,		•	o	-	•				? (, ,	
	3	ċ	7	œ	00	·	ċ	0				2	2		5	3	
		٠,	1	œ.	18.8	•	20.1	50.6	21.1	_	21.9	22.3	٠ د	25.9	23.5	ن •	
	4	\$	7	8	æ	•	ċ	0	•	H	-	2	2	2	ι.	3	
	14.6	15.9	17.0	17.9	•	19.4	ċ	0	-		-	5	22.6	2		23.4	
3.0	•	5	¢	7	90	•	0	0	÷	+		8	~	2	*	160	
	4	5		7.		•	0	0	-	•	21.9	22.2	22.6	22.9	23.2	3	
	4	5	4	7	80	0	0		;	+	٠ با	2	٥.	2	3	3	
	4	5	6	7	80	6	6	0	;	+	-1	2	0	2	3	~	
	4	15.6		17.7		19.3	19.9	20.5	•	21.4	-	5	•	8	3		
	4	ľ	vC	7	œ	•	Ċ	()	*	-	•	2	2	~	1	M	
	4	5	٠	7	60	6	CA	-	+	+	• ₁	2	~	2	3	3	
37	14,2	15.5	16.7	17.7	18.5	19.2	19.9	20.4	21.0	21.4	21.8	22.2	22.6	22.9	23.2	23.4	
	4	5.	\$	7.	8	•	6	0	+	+	+1	5	2	ci	≈ >	3	



YARN BULK DENSITY = 0.85

7 ACTOR 1 ACTOR 1 A L L L L L L L L L L L L L L L L L L		1010	0 0 0		10100	14100	1 410 0	0 1 4 1 0 0	1410 0	14100	1410 6	14100	0 0 0	1 41 0 0	1 4 1 0 0	27.
76780							0. 0. 27.1	4	200.	33.0 25.0 25.0	24.1 24.5 23.5 5	24.1 25.8 24.3 5.5 5.5	28.2 24.2 23.7	25.7 25.0 24.2 23.8	0000 0000	2000 2000 2000 2000 2000 2000 2000 200
0.0000		0. 0. 11.5 18.3	0. 0. 23.6 19.7 18.5	CV 100	04000	24.3 20.9 20.9 20.4	23.03 20.03 20.03 20.03	22.7 21.9 21.5 21.2	22.7 22.1 21.8 21.6 21.5	222 222 4.222 1.22 1.00	0.000 0.000 0.000	222. 222. 222. 22. 66. 7. 66. 7. 66. 7. 66. 7. 66. 7. 66. 7. 66. 7. 66. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7.	2000 2000 40000	00000 50000 50000 500	000000 88888 80000	0.000 0.000 0.000 0.000 7.000
00 10 0 00 00	¢ννι.4	7.51 7.61 14.61 16.0	17.9 17.6 17.3 17.2			00000	6000 6000 6000 6000 7000	20.0 20.8 20.8 20.7	4 50 50 50 50 50 50 50 50 50 50 50 50 50	21.8 21.7 21.7 21.6 21.6	222.2 222.1 22.1 22.0	00000 00000 00000	2222	22222 22222 22222 24442	00000 888888 44888	2223 2333 2333 233 233 233 233 233 233
2 4 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	44444 4444 46444	15.0 15.8 15.7 15.7	17.0 16.9 16.9 16.8	17.9 17.9 17.9 17.8	18.7 18.7 18.7 13.7		22000	000000 00000 00000	 	21.6 21.6 21.6 21.6		00000 00000 44440	2222 2222 2222 2227	2233 2333 2333 2333 2333 2333 2333 233	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	22223 2223 233 23 23 23 23 23 23 23 23 2
33 93 93 93 93 93 93 93 93 93 93 93 93 9	4444	15.7 15.7 15.6 15.6		17.8 17.8 17.8	or or or or	0000	20.0	20.6	21.1 21.1 21.1	21.6 21.5 21.5 21.5	222	222.3	22.7 22.7 22.7 22.7	23.0 23.0 23.0	0000 0000 0000 0000	

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.86

•	0		40468	40000		<i></i>	r
) (0	90000 90044	44888	89999 89999	888888 888888	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
1	1.9	. 0	8 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	00000 00000 00000	00000 00000 00000	00000 88888 8444	80000 80000 4444
ĺ	1.8		0 / 20 / 4 / 4 / 6 / 4 / 6 / 6 / 6 / 6 / 6 / 6	2000 2000 2000 2000 2000 2000 2000 200	2222 2222 2222 2222	22333	233.1 23.1 23.1 23.1
	1	0	2000 2000 2000 2000 2000 2000	223.23 23.23 24.25 24.05	22.0	222.9	22. 22. 22. 33. 33. 33.
	-	0	0466 0466 0466 0466	23.3 22.9 22.9	222.6 222.6 22.5 32.5 5	222.5	22.5 22.5 22.5 5
	1.5	6	0 27.9 24.8	22222 22222 18622	2222 2222 2222 2022 2022 2022 2022 202	222.11.11.12.11.11.11.11.11.11.11.11.11.	222.1 222.1 22.1 1.1 1.1
	4 .	0.		222.0 222.0 22.136	21.9 21.9 21.8 21.8	21.7 21.7 21.7 21.7	21.7 21.7 21.7 21.7
	-	. 0		22.9 22.3 22.1 21.7	221.3 221.3 21.3 21.3 21.3	21.2	21.2 21.2 21.2
96	1.2	0			20.0 20.0 20.9 20.8	20.7 20.7 20.7 20.7	20.7 20.7 20.7 20.7
	•		00000		22000 2000 2000 2000 2000	20.5 20.2 20.2 20.1	26.1 20.1 20.1 20.1
	1.0	0		22000 2000 2000 2000 2000 2000 2000 20	20.0 19.9 19.7 19.7	100.00	
	0.0	•		23.0 201.0 19.7	4 C + C + C + C + C + C + C + C + C + C	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	18.7 18.7 18.7 18.7
	0.0			310 210 149 199 209 209 209	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	18.0 18.0 18.0 17.9	17.9 17.9 17.9
	0./	1	00000	0 25.5 4 18 7	18.1 17.7 17.5 17.3	17.1 17.0 17.0 17.0	16.9 16.9 15.4
	9.0	i		0.00.00.00.00.00.00.00.00.00.00.00.00.0	17.4 16.9 16.3 16.3	155.40 157.40 157.80	15.8 15.8 15.7 15.7
	1		00000	0. 0. 21.0	7.00 1.00 1.00 1.00 1.00	44444 44444 7	4444
	[K1]	† * **	11 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0		25 25 26 29 29		5 4 7 60 6 4 6 7 60



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.87

Kii	N V P P C T C T C T C T C T C T C T C T C T		-	1	1		1	!	8E T	! !		:		1	!	1	•
14 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	[K 1]	0.5	9.0	0.7	0.8	0	1.0	1.1	1.2	1.3	1.4	7.5	1.6	1.7	43 I	7	
0. 0.<	4 1	0		0		0	0 .	0	0.	. 0	. 0	•	0.	0	0	0	0.
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	15									0			•	0	0	~	•
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	16				-					0		0	0	6	7.	•	•
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	17				_					0	0	8	9	ιυ •	5	5	'n
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	10				_			ċ	0	œ.	5.	5	4,	4	4	4	4
10. 0. 0. 0. 0. 0. 25.9 23.8 23.2 23.1 23.2 23.3 23.5 23.7 23.9 24.1 2 0. 0. 0. 0. 0. 23.6 22.5 22.2 22.3 22.7 23.9 23.0 23.5 23.7 23.9 24.1 2 0. 25.0 20.5 20.1 21.5 21.5 21.5 22.7 23.0 23.3 23.6 23.8 23.0 25.2 20.1 20.2 20.2 20.3 21.5 21.9 22.3 22.3 22.6 22.9 23.7 23.9 24.1 2 0. 25.0 20.0 20.0 20.0 21.3 21.7 22.1 22.3 22.6 22.9 23.7 23.7 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	10				-			•	5.	4	4	m	۵.	4	4	4	4
0. 0. 0. 0. 0. 73.6 22.5 22.3 22.3 22.7 23.0 23.2 23.5 23.7 23.9 23.0 20.0 28.9 21.9 21.3 21.3 21.5 21.8 22.1 22.4 22.8 23.0 23.3 23.6 23.8 23.0 23.2 23.5 23.6 23.8 23.0 23.2 23.5 23.6 23.8 23.0 23.2 23.5 23.6 23.8 23.0 23.2 23.5 23.6 23.8 23.0 23.2 23.5 23.6 23.8 23.7 23.7 23.1 23.5 23.7 23.7 23.7 23.7 23.7 23.7 23.7 23.7	2 G						'n		3	m	M	3	m	12	3	4	4
0. 0. 28.9 21.9 21.3 21.5 21.6 22.1 22.4 22.8 23.0 23.3 23.6 23.8 3 0 23.2 23.8 2 0 23.2 2 0 23.3 2 0 23.2 2 0 23.2 2 0 23.3 2 0 23.2 2 0 23.3 2 0 23.2 2 0 23.3 2 0 23.2 2 0 23.3 2 0 23.2 2 0 23.3	21			•	•	m	?	?	2	2	2	ы	3	3	٠.	3	4
0. 25.0 20.5 20.1 20.4 20.7 21.1 21.5 21.9 22.3 22.6 22.9 23.2 23.5 23.8 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	22			œ	Ļ	+	+		+	ċ	2	~	<i>ا</i>	<i>ب</i>	5	M	4
25.2 19.0 19.0 19.4 19.0 20.4 20.9 21.3 21.7 22.1 22.5 22.8 23.2 23.4 23.7 2 17.5 17.7 18.3 18.9 19.6 20.1 20.7 21.2 21.6 22.0 22.4 22.8 23.1 23.4 23.7 2 15.2 17.0 17.9 18.6 19.3 20.0 20.6 21.1 21.6 22.0 22.4 22.7 23.1 23.4 23.5 2 15.2 16.4 17.6 18.5 19.2 19.9 20.5 21.0 21.5 21.9 22.3 22.7 23.0 23.3 23.6 2 15.2 16.4 17.4 18.3 19.1 19.9 20.5 21.0 21.5 21.9 22.3 22.7 23.0 23.3 23.6 2 15.0 16.2 17.3 18.2 19.0 19.7 20.4 20.9 21.4 21.9 22.3 22.6 23.0 23.3 23.6 2 14.8 16.1 17.2 18.1 18.9 19.7 20.3 20.9 21.4 21.8 22.2 22.6 23.0 23.3 23.6 2 14.6 16.0 17.1 18.1 18.9 19.6 20.3 20.9 21.4 21.8 22.2 22.6 23.0 23.3 23.6 2 14.6 15.9 17.0 18.0 18.9 19.6 20.3 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 14.5 15.9 17.0 18.0 18.9 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 14.5 15.8 21.8 21.8 22.2 22.6 23.0 23.0 23.3 23.6 2 14.5 15.8 21.8 21.8 21.8 21.8 22.2 22.6 23.0 23.8 23.8 23.8 23.8 23.8 2	23		5	c	ċ	0	ů	**	1.	•	å	~	2	3	m	2	4
17.5 17.7 18.3 18.9 19.6 20.1 20.7 21.2 21.6 22.0 22.4 22.7 23.1 23.4 23.7 2 16.2 17.0 17.9 18.6 19.3 20.0 20.6 21.1 21.6 22.0 22.4 22.7 23.1 23.4 23.6 2 15.6 16.6 17.6 18.5 19.2 19.9 20.5 21.0 21.5 21.9 22.3 22.7 23.0 23.3 23.6 2 15.2 16.4 17.4 18.3 19.1 19.8 20.4 21.0 21.5 21.9 22.3 22.7 23.0 23.3 23.6 2 15.0 16.2 17.3 18.2 19.1 19.8 20.4 21.0 21.5 21.9 22.3 22.7 23.0 23.3 23.6 2 15.0 16.2 17.3 18.2 19.0 19.7 20.4 20.9 21.4 21.9 22.3 22.7 23.0 23.3 23.6 2 1 14.8 16.1 17.2 18.1 18.9 19.7 20.3 20.9 21.4 21.8 22.2 22.6 23.0 23.3 23.6 2 1 14.5 15.9 17.0 18.0 18.9 19.6 20.3 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 1 14.5 15.9 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 1 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 1 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 1 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 1 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 1 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 1 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 1 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 1 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 1 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	24	5	0	6	•	•	0		÷	÷	ò	0	5.	n	m,	67	*
15.0 17.0 17.9 18.6 19.3 20.0 20.6 21.1 21.6 22.0 22.3 22.7 23.1 23.4 23.6 2 2 15.6 16.6 17.6 18.5 19.2 19.9 20.5 21.0 21.5 21.9 22.3 22.7 23.0 23.3 23.6 2 2 15.0 16.4 17.4 18.3 19.1 19.8 20.4 21.0 21.5 21.9 22.3 22.7 23.0 23.3 23.6 2 2 15.0 16.2 17.3 18.2 19.0 19.7 20.4 20.9 21.4 21.9 22.3 22.7 23.0 23.3 23.6 2 2 14.6 16.2 17.2 18.2 19.0 19.7 20.3 20.9 21.4 21.8 22.3 22.6 23.0 23.3 23.6 2 2 14.6 16.0 17.1 18.0 19.7 20.3 20.9 21.4 21.8 22.2 22.6 23.0 23.3 23.6 2 2 14.6 15.9 17.1 18.0 18.9 19.6 20.3 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 2 14.5 15.9 17.0 18.0 18.9 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 2 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 2 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 2 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 2 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 2 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 2 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 2 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	25	`	7	œ	α.	•	0	0	•	+	8	2	2	100	3	2	
15.6 16.6 17.6 18.5 19.2 19.9 20.5 21.0 21.5 21.9 22.3 22.7 23.0 23.3 23.6 2 2 2 15.2 16.4 17.4 18.3 19.1 19.8 20.4 21.0 21.5 21.9 22.3 22.7 23.0 23.3 23.6 2 2 2 15.0 16.2 17.3 18.2 19.0 19.7 20.4 20.9 21.4 21.9 22.3 22.7 23.0 23.3 23.6 2 2 14.8 16.1 17.2 18.1 18.9 19.7 20.3 20.9 21.4 21.8 22.3 22.6 23.0 23.3 23.6 2 14.6 16.0 17.1 18.0 18.9 19.6 20.3 20.9 21.4 21.8 22.2 22.6 23.0 23.3 23.6 2 14.6 15.9 17.1 18.0 18.9 19.6 20.3 20.9 21.4 21.8 22.2 22.6 23.0 23.3 23.6 2 14.6 15.9 17.1 18.0 18.9 19.6 20.3 20.8 21.4 21.8 22.2 22.6 23.0 23.3 23.6 2 14.5 15.9 17.0 18.0 18.9 19.6 20.3 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 14.5 15.9 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	56	œ.	7.	7.	œ	6	0	0	+	+	٥.	%	3	, M	3	3	3
15.2 16.4 17.4 18.3 19.1 19.8 20.4 21.0 21.5 21.9 22.3 22.7 23.0 23.3 23.6 29 15.0 16.2 17.3 18.2 19.0 19.7 20.4 20.9 21.4 21.9 22.3 22.7 23.0 23.3 23.6 20 14.8 16.1 17.2 18.2 19.0 19.7 20.3 20.9 21.4 21.8 22.3 22.6 23.0 23.3 23.6 20 14.5 16.0 17.1 18.1 18.9 19.7 20.3 20.9 21.4 21.8 22.2 22.6 23.0 23.3 23.6 20 14.6 15.9 17.1 18.0 18.9 19.6 20.3 20.9 21.4 21.8 22.2 22.6 23.0 23.3 23.6 20 14.6 15.9 17.1 18.0 18.9 19.6 20.3 20.8 21.4 21.8 22.2 22.6 23.0 23.3 23.6 20 14.5 15.9 17.0 18.0 18.9 19.6 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 20 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 20 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 20 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 20 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 20 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 22.0 22.0 23.3 23.6 20 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 22.0 22.0 23.3 23.6 20 14.4 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 22.0 22.0 22.0 22.0 23.3 23.6 20 20.8 21.3 21.8 22.2 22.6 22.0 22.0 22.0 23.3 23.6 20 20.8 21.3 21.8 22.2 22.6 22.0 22.0 22.0 22.0 22.0 23.3 23.6 20 20.8 21.3 21.8 22.2 22.6 22.0 22.0 22.0 22.0 22.0 23.3 23.6 20 20.8 21.3 21.8 22.2 22.6 22.0 22.0 22.0 22.0 22.0 22.0	27	Š	·	7	60	6	6	ċ	+	+	+	2	ς.	M.	3	3	ري ري
15.n 16.2 17.3 18.2 19.n 19.7 20.4 20.9 21.4 21.9 22.3 22.7 23.0 23.3 23.6 2 1 14.8 16.1 17.2 18.2 19.n 19.7 20.3 20.9 21.4 21.9 22.3 22.6 23.0 23.3 23.6 2 1 14.5 16.0 17.2 18.1 18.9 19.7 20.3 20.9 21.4 21.8 22.2 22.6 23.0 23.3 23.6 2 2 14.6 15.9 17.1 18.0 18.9 19.6 20.3 20.9 21.4 21.8 22.2 22.6 23.0 23.3 23.6 2 3 14.6 15.9 17.0 18.0 18.9 19.6 20.3 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 1 14.5 15.9 17.0 18.0 18.9 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 1 14.5 15.9 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 1 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 1 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 1 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 1 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 1 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 1 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	28	5.	. 9	7	œ	6	•	0.	-	, +-	1.	2	ы Сі	3	3	3	M
14.8 16.1 17.2 18.2 19.0 19.7 20.3 20.9 21.4 21.9 22.3 22.6 23.0 23.3 23.6 2 2 1 14.8 15.0 17.2 18.1 18.9 19.7 20.3 20.9 21.4 21.8 22.3 22.6 23.0 23.3 23.6 2 2 1 14.6 16.0 17.1 18.1 18.9 19.6 20.3 20.9 21.4 21.8 22.2 22.6 23.0 23.3 23.6 2 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	62	5	\$	1	8	•	6		0	÷	1	3	ci	3	3	1	3
14.7 16.6 17.2 18.1 18.9 19.7 20.3 20.9 21.4 21.8 22.3 22.6 23.0 23.3 23.6 23.1 14.6 16.0 17.1 18.1 18.9 19.6 20.3 20.9 21.4 21.8 22.2 22.6 23.0 23.3 23.6 23.1 14.6 15.9 17.1 18.0 18.9 19.6 20.3 20.8 21.4 21.8 22.2 22.6 23.0 23.3 23.6 23.1 14.5 15.9 17.0 18.0 18.9 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 23.1 14.5 15.9 17.0 18.0 18.9 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 23.1 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 23.1 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 23.1 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 22.9 23.3 23.6 23.1 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 22.9 23.3 23.6 23.0 23.3 23.2 23.0 23.3 2		4	•	7	6 0	6	6	ċ	0	+	+	8	C)	3	3	3	3
14.6 16.0 17.1 18.1 18.9 19.6 20.3 20.9 21.4 21.8 22.2 22.6 23.0 23.3 23.6 2 14.6 15.9 17.1 18.0 18.9 19.5 20.3 21.8 21.4 21.8 22.2 22.6 23.0 23.3 23.6 2 14.5 15.9 17.0 18.0 18.9 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 17.5 15.9 17.0 18.0 18.9 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 22.9 23.3 23.6 2 14.4 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 22.9 23.3 23.6 2		4	÷		8	80	6	0	0	+	+	2	0	3	3	• (M	3
3 14.6 15.9 17.1 18.0 19.6 20.3 20.8 21.4 21.8 22.2 22.6 23.0 23.3 23.6 2 4 14.5 15.9 17.0 18.0 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.5 2 5 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 14.4 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2		4	. 9	7	œ	8	6	0	0	٠ چا	1.	~	2	M	M	3	3
4 14.5 15.9 17.0 18.0 18.9 19.6 20.3 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 14.5 15.9 17.0 18.0 18.9 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 22.9 23.3 23.6 2 14.4 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 22.9 23.3 23.6 2		4	5	7.	8	8	•	ċ	Ö	**	+	~	2	3	3	3	3
5 14.5 15.9 17.0 18.0 18.9 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 22.9 23.3 23.6 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		4		7.	œ	8	6	0	٠ ت	÷	+4	ċ	2	3	2	3	3
6 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 7 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 8 14.4 15.8 17.0 18.0 18.8 19.6 20.8 21.3 21.8 22.2 22.6 22.9 23.3 23.6 2 8 14.4 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 22.9 23.3 23.6 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		4.	r.	7.	8	00	6	c	0	**	+	0	2	3	3	3	3
7 14.5 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 23.0 23.3 23.6 2 8 14.4 15.8 17.0 18.0 18.8 19.6 20.8 21.3 21.3 21.8 22.2 22.6 22.9 23.3 23.6 2		4	ر.	7.	α.	œ	6	6	0		1.	~	?	3	, ,	'n	M
8 14.4 15.8 17.0 18.0 18.8 19.6 20.2 20.8 21.3 21.8 22.2 22.6 22.9 23.3 23.6 2		4	ď	7	x	8	•	0	0	;	+	~	٥.	3	3	3	3
		4	r.	7.	8	8	0	c	0	+	+	2	2	2	3		M

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.88

		1	Í			1	1	9E =	1	- 1						į. 1	1
3 X	0.5	9.6	0.7	60	0	1.0		1.2	1.3	-	5.1	1.6	1.7	00	1.9	2.0	ì
14					•	0 0		0	0	0			L	0		0	
														ت		6	
	0	C	0.	0	0		-	0.	0	0	•	0	31.0	28.1	27.1	26.5	
									0	0	0		9	ď.	5.	5	
							-	•	•		•	س	+	4	4	4	
19	0						39.5		4	4	4	4	*	4	4		
						7.	4	10	ь.	•	*	ر.	10	*	4	4	
	.0	ċ	0	0	4		_	•	22.7	3	3	23.4	23.6	3	24.1	•	
			•	•	-	+	•	2	5	o,	2	3	8	٠.	*	*	
		0	0	0	0	0	4	-	2	Š	2	∾.	3	3	P)	4	
	29.4		•	•	•	0	-	-	-		22.6	, M	3	23.6	3	4	
25		7	œ.	0	6	0	Ô	•	÷	2	~	8	M	1 20	3	4	
	\$	17.2	18.0	18.8	19.5	•	ċ		21.7	22.1	2	22.9	•	~)		4	
	5.	. 9	7	80	0	0	0	4-4	•	2	2	2	3	3	2	4	
	5	9	7	8	0	6	0	**	+	2	~	2	h)	M	رما (سا	4	
	15.1	•	7.	α.	6	•	20.5	1	+	5	22.4	8	3	•	-	•	
30	4	ć	7	60	6	0	0	•	•	2	~	2	M	2	*	4	
	4	\$	7	80	6	•	9	+	-	2	2	8	3	3	P)	4	
	14.7	16.1	17.2	18.2	19.0	•	20.4	21.0	21.5	22.0	22.4	22.8	23.1	23.4	23.7	24.0	
	4.	ć	7	æ	6	•		+	+	7	~	2	3	3	, n	4	
34	•	•	7.	8	0	0	·		+		2	2	3	ان. •	3	4	
	4	ċ	7	œ	6	•	0	0	*	-	~	2	M 2	m	10	4	
	4	5	7.	a:	6	•	<u>c</u>	0	+	H	2	2	8	8	3	4	
3.7	14,5	15.9	17.1	18.1	18.9	19.7	20.3	20.9	21.5	21.9	22.3	22.7	23.1	23.4	23.7	24.0	
	4	г. •	7	œ	30	•	c	0	1.	-	2	2	٠ ا	· (M	3	4	

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =0.89

1	• 1	0.	0	o v	5	4	4	4	4	4	4	4	4	4	4	4	4	4	+	24.1	4	4	24.1	4	4
	6	•	00 1	7.8.20	5.1	4.7	4	24.2.2	4.1	4.1	4.0	24.9	3.9	3.9	3.9	2	3.9	3.9	3.8	23.8	3.8	3.8	23.8	3.8	3.8
1	00 1	0	0 0	7.00	5.0	4. T.	(V	24.0	3.0	3.8	3.7	23.7	3.6	3.6	3.6	3.6	3.6	3.6	3.6	23.5	5	3.5	23.5	3.5	3.5
	-	0	0	26.6 56.5	3	4	4	23.8	٠ •	3	*2	23.4	3	ر ا	3	.	س	(M	3	23.5	3	3	23.5	M	3
1	1.6	0		27.7	5	4	3	23.5	M)	M	3	23.1	ريا •	3	2	3	2	Ġ	2	22.9	2	8	25.9	2	ċ
1	4.5	9		34.3	3	4	M3	23.3	3	3	'n	22.7	٥.	٠.	Ň	3	€	٥.	2	25.5	3	2	25.5	~	٠.
1 1	4.		•		•	4	3	23.1	2	2	8	22.3	?	2	2	3	2	?	2	22.1	2	5	22.1	5	2
•	1 .	0		• •	2		₩)	22.9	0	Ċ	5	+	H	;	+		- i	+	+4	21.6		+	21.6	+	÷
9E1	1.2	0.			0		3	22.7	2	4-1	÷		+	•	-1	1.	-	•	+	21.1	√ −1	+	21.1		•
	1.1	. 0					4	22.8	-	÷	-	**		20.7	0	÷	0	Û	0	20.5	0	0	20.5	ċ	0
	1.0	•					80	•		+	20.7		0	0	0		6	6	6	10.9	6	0	19.8	Ċ	6
	0.0						0	5	+			19.8	Ġ.	•	6	0	0	6	6	6	6	5	•	o.	6
	8							ċ	3	0	19.8	19.2	6 0	ċ	8	80	œ	æ	œ	œ		æ.	18.2	œ	œ
	0.7	0 .				ċ			0	1.	0	•	60	7	7	17.5	7.	7	7.	1	17.2	7.	17.2	7.	7 .
	9.0	. 0								<u>.</u>		œ	7	÷	÷	16.5	ς.	ċ	4	ç	16.1	\$		·	÷
1	0.5			• • •			0					8	•	5	3.		Š	4	4	4	14.7	4	14.7	4	4
	4 <u>~</u> 7 X	1 4 4	15	4 T	60	40	20	21	25	23	24	25	56	27	28	66	3.0	31	32	33	4	35	36	37	38

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.90

								86		!			((1
(K1)	0.5	9.0	-	60	(C)	1.0		1 ent 1	1.3	1.4	1.5	1.6	1.7	1.8		2.0
	4		.0		0	0		0			6	0	0			0.
					0							•	0	0		+-1
	0		٥.	0	0	0.	0	0	0	•			35.2	29,4		27.2
								0	0	0		•	•	•	•	5
		0						0	•	•	•	5	5	5	E	S.
								27.7	5	4	+	4	4	4	+	Š
						-	in	4	M	3	E	4	4	4	*	4
				•	9	3	m	3	3	3	3	3	3	4	•	
	0	0		23.8		2	•	•	22.6	22.9	23.2	∾,	: 5	24.0	•	+
		C	2	+	-	+	-	2	2	8	1 20	3	(م)	5	4	*
	0.	20.4	19.7	•		20.8	-	+	2	2	~	23.3	23.6	3	4	24.4
	ac.	00	60	0		ی	•	-	•	2	2	2	P)	6 0	4	*
	_	17.6	18.3	19.1	19.8	0	21.0	21.5	22.0	22.4	22.8	23.1	3	23,8	24.1	4
	.0	7	80	ď	0	0	•	+	+	2	~	₩)	2	3	4	4
	5.	¢	~	œ	6	0	0	-	-	~	~	3	3	3	4	4
		•	7	æ	6	0	0	÷	+	5	2	3		3	4	24.3
30	r.	•	7	60	6	•	0	÷	+4	Ś	2	(س	8	3	4	4
	15.0	16.4	17.5	18.4	19.3	•	20.7	21.2	21.8	22.2	22.6	23.0	23.4	23.7	24.0	
	4	9	7	6	6	0	0	+	+	2	~	3	3	3.	*	*
	4	9	7	60	6	0		+	***	ò	2،	نا. •	3	3	•	4
	4	ċ	7	8	•	19.9	0	+	-1	٥.	<u>٠</u>	3	•	3	4	-
	4	· C	7	æ.	o	6	ċ	•	**	8	~	2	P 5	3	•	4
	4	ċ	7.	80	6	•	c.	+	-	2	2	3	m	3	*	4
3.7	14.7	16.1	17.5	18.3	19.2	19.9	20.6	21.2	21.7	22.2	22.6	23.0	23.3	23.7	24.0	24.5
	4	ċ	7.	oc:	6	•	ċ	+	;	~	2	٠ د	5	٠ س	•	4



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.91

FOUR-HARNESS WEAVE FABRICS

								BET	1	1	•	!	1		•	1
X	0.5	9.0	0.7	0.8	0.0	1.0	4.1	1.2	1.3	7	1.5	₩ 1	1	→ 1	9 1	
4 4	1	1	•	t		0	0 .	0 .	0	0			0			0
													_	C	C	ď
											•		•	•	• a	1 1
												•		•	•	• ,
										0	œ	8	7	•	•	ç
				<u>.</u>				0	•	8	26.6	S	S.	25.5	25.5	Ŋ
i 9	0	c	. 0	u·	0.	0.	. 0	28.8	26.0	25.2	•	•	24.8	•	r.	25.1
					C	5	r.	4	4	4	ৰ	4	4	4	4	4
				;	,	4	~	~	~	~	-	~	4	4	4	4
	•	: c		7 4 7		•		30.00			24.6	7 20	10	0.40	24.4	24.7
			•	•	•			•		•	:		•	•	•	•
		·	0			•		•	2	Š	٠,	·	3	4	•	•
		21.1	0.0	•		21.0	-	1.		C	٠ ا	m	m)	4	.	4
	6	α	6	•	0	ŧ.	.	-	2	CJ	5	•	M	4	4	4
	7	7	00	6	0	0	+	+	ς.	8	~	3	3	3	+	4
	9	7.	œ	19.0	٠ •	0	•	+	ò		22.9	3	٠. س	23.9	•	*
	5		7	œ	0	0	0	***	?	2	<. ⋅	3	3	3	4	4
	15.5	16.7	17.8	•	19.5	20.5	50.9	71.4	21.9	2		3	•	64	4	24.4
30	Ś	ć	7.	<i>عن</i> •	6	c	C	-	+	0	~	3	(M)	3	*	4
	ů.	·	7	œ	6	0	0	1.	·	2	2	M	8	3	4	4
		•	1	18.5		0	Ċ	+	-	N	•	3	•	3	*	4
	v.	9	7.	œ	•	0	0	+	+	~	2	الما •	3	, M	4	4
		16.3	17.5	•	_	20.1	20.7	21,3	21.8		0	23.1	3	23.8	24.1	24.4
	<;·	ς.	7	æ	0	0	0	-	- -1	2	~	w.	8	8	4	4
	4	\$	7.	80	6	0		+	+	2	?	3	m	, M)	4	4
37	14.8	16.2	17.4	18.4	19.3	20.0	20.7	21.3	21.8	22.3	22.7	23.1	23.5	73.B	24.1	24.4
	4.	Ġ	7	œ	•		0	-	÷	2	~	12	3	3	4	4

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.92

	(1	!	((8ET	1							1	
4 ≈ 1	0	9 . 6	6.7	0 .8	0	-	-	1.2	1 1	4	7.1	1.6	1.7	1.8	6.1	2.	
-	0		0		0	0		• 0	0	. 0		.0	0	• 0	0	0)
													•	0	0	1	هس
	- -	Û.	0	0	c)	0	0	0	0			0	0	31.0	-	•	
										0	0		•		•	è	_
								0				•	5	v	10	ľ.	
										S.	E	Ś	5.	S.	K U	3	_
						0	•	4	-	4	4	-	4	4	*	5	
		0	0.		0.	4	23.6	23.4	23.5	23.6	23.8	24.0	24.3	*			_
			•	5	3	ċ	ċ	3	3	3	, 10	m	4	*	*	4	_
			3		4	4	5	2	·	3	m	3	3	4	*	*	
	0.	21.9	•	·	•		7	÷	cv.	~	m	3	3			4	
25	0	6	_	19.7	0	20,9	•	÷		22.7	10	M	100	4	•	4	. **
	/	17.9		9	0	0	+	21.7	-	ci	M		23.7	4		4	
	•	7	ď	6	6	0	;	1.	2	5	, m	3	m	4	4	4	
	5	7.	8	8	6	0	÷	1:	2	2	m	رم رم	3	*	*	+	
	15.6	•	7	60	19.6	0	-	1.	2	2	•	3	, M	24.0	4	•	
	10	¢	~	80	6	0	0	+	5	2	~	₹	m	4	4	4	
	15.2	16.6	17.7	18.7	19.5	20.5	50.9	21.5	22.0	22.5	22.9	23.3	23.6	24.0	24.3	24.5	
	3	9	7.	90	•	0	<u>.</u>	*	5	0	~	3	n M	4	4	4	
	50		7	8	6	0	ċ	-	5	2	2	۲)	3	, m	4	4	
4	•	ç	7	œ	·	0	c		ò	2	ĉ	m	2	F)	+	4	
_	4	é	7	ac.	6	0	0	**	ć	2	n	*	3	M)	4	4	
36	14.9	16.3	17.5	18.5	19.4	20.1	20.8	21.4	21.9	22.4	22.9	23.2	23.6	23.9	24.5	24.5	
	4	9	-1	8	0	0	0	1.	7	2	~	3	H)	3	*	4	
	4	÷	7	œ	6	ċ	<u> </u>	7	• پسن	5	~	י כיה	.	w)	4	4	

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.9.

								BET			!	1	!		•	•
A T	0 .	. 6	0.7	0	0	1.0		1	• 🗝 •	1 44 1	5 . 5	1.6	1.7	41	4,9	2
4 4		. 0	0	0 .		0		0		.0		3	0	0		
_													•	0	0	•
-												0	0	3	6	8
17	. ი	G.	0	0	0.	0	0	0	0	0	<u>.</u>	30.7	28.5	27.3	26.8	26.6
_								0	Ö			9	9	5	5	3
19	0		0							3	5	5	5	r.	S.	5
						C	*	u)	4	4	4	4	4	4	10	5
	0	0	0.	0	•	5.	23.9	23.6	23.7	23.8	24.0	24.2	24.4	24.6	24.8	25.1
			0	7.	3	2	2	2	3	~	3	4	4	4	4	+
			4	2	, -i	-	2	3	2	3	3	'n	4	4	4	+
	0					21.3	-	8	ò	m	۲)	1	4	4	*	4
(((c	,		c	c	C	•	.4	۲			4
	4 ~	1.0.0 1.0.0	, a	, 0				21.0	20.7	20.00	23.0	0 K	23.9	2.40	24.5	
	9	. ~	α	. 0	. 0		• •	•	, N	2	m	, m	3	4	+	4
	9	1	8	6	6	0	•	·	2	2	3	3	3	4	4	4
	15.7	7.	•	Ċ		0	21.1	-1	8	o,	3.	نما •	m	•	4	4
3.0	3.	•	7.	œ	ò	0	÷	+	ć	8	m	8	8	4	4	4
	15.3	16.7	17.8	18.8	19.6	20.4	21.0	21.6	22.1	25.6	23.0	23,4	23.8	24.1	24.4	24.7
	S	•	7.	œ	6	0	+	+	5	8	M	3	3	4	4	4
	'n		7.	æ	•	0	•	+	٠ د	2	3	3	M	4	4	4
	5.	9	7.	80	6	0	•	•	0	0	PC:	نم •	3	4	4	4
	'n.	ż	7	œ	•	0	0	-	8	8	3	3	*	4	4	4
36	15.0	16.4	17.6	18.6	19.5	20.3	20.9	21.5	22.1	22.5	23.0	23.4	23.7	24.1	24.4	24.6
	3.	÷	7.	œ	6	•	ċ	-	ò	2	3		3	4	4	4
	3	ç	7.	œ	6	0	0	*	8	C1	3	m	M	4	4	4

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.94

MARP

OVER					,	:		BET		1	! :	ļ		•	1		
T X 1 0 X	0.5	9.0	0.7	0		1.0	1.1	1.2	וכוו		1.5	1.6	1.7	4-1 00	4.9	2	
4	0	ت		0				0		0.		.0	0	0.	0	0	ı
												0		0			r.
16	0	0	0	0	0.	0	0.	0,	0	0	•	•	0	33.6	29.8		10
										Ġ	9	-1	8	7	7	9	60
								0	0			•		•	•	•	-4
19										8	R.	ري. د	1 0	1 0	1 0	Š	•
20						•	•	3	•	4	4	*	4	Š	10	Š	4
21		0				ĸ.	4	3	3	4	4	4	*	4	5	5	~
5.5				0	3	3	3	3	, M	3	₩)	4	4	•	4	5	-
23	0	·	9	22.4	22.0	22.0	22.3	22.6	23.0	23.3	23.5	23.9	24.2	24.5	24.8		0
24				0.	1.	+	1.	8	5	m	2	3	4	•	4	5	0
ر بر	7	0	0	0	0	•	-	2	2	M	1	6	4	4	4	4	•
		18.4	19.0	19.7	20.3	20.9	21.5	22.0	22.5	22.9	23.3	23.7	24.0	24.3	24.6	24.	•
	9	7	œ	6	0	0	+	-	0	2	3	3	4	4	4	4	0
	•	7	œ	6	0	0	+	-	ò	3	5	3	3	4	4	4	60
66		7.	8	0	6		1.	+	5	0	m	3	3	4	4	4	6 0
	5	•	8	0	•	0	-4	+	ò		3	3	س	4	4	4	30
31	15.4	16.8	17.9	18.9	19.7	20.5	21.1	21.7	25.2	-	23.2	23.5	23.9	24.2	24.5	24.6	6 0
	3.	ç	<u>٠</u>	æ	6	0		+	8	°	, M	3	3	4	4	+	60
	5	3	7.	œ	6	0	+	-	Ĉ	'n	m	m)	3	4	•	4	œ
3.4	5	•	7.	œ	6	0		+	ċ	8	S		3	4	4	+	6 0
	5.	·c	7.	œ	0.	0	-	4-4	8	2	2	8	100	4	+	4	80
36	15.1	16.5	17.7	18.7	19.4	20.4	21.0	21.6	25.2	22.7	23.1	23.5	23.9	24.2	24.5	24.8	60
	5	ċ	7.	8	·	с С		+	<u>٠</u>	2		٠ ا	m	4		4	യ
38	5.	é	7.	8	•	0	-	•	<u>،</u>	3	P)	·	יי רא	4	4	4	6 0



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.95

A P P P P P P P P P P P P P P P P P P P								₽- U									
FACTOR [K1]	0			1 00	0	1.0	1 44	1.2	; ·	1.4	1.5	1 0	1.7	1.8	1 6	2.0	
1 4 -					.0	0	0	0	0	0				0.	9 •	•	
			c											0		•	
								. 0	0		. 0	0		35.9		80	
			<u>.</u>						0	0	0		•	8		•	
									0	4	•	7	9	•	•	\$	
19	0.			. 0						•	5	S.	5	S.	r.	is.	
						O	0	•	r.	4	4	4	5	2	Š	Š	
						•	4	ष	4	4	4	4	4	4	5	3.	
				0	4	P)	2	23.3	23.5	3	24.0	24.3	24.5	24.8	25.0	•	
			0	2	2	3	2	2	3	ы.	3	4	4	+	4	S.	
	ũ.	26.9	21.5	21.1	21.3	21.7	22.1	\sim	2	23.3	3	4	4	•	4	ľ.	
25	v	·	0	(C)	0	+	• •	\sim	2	M	1 0	M	4	4	*	5	
	T)	α¢	6	6	0	-	-	2	2	M	~ 2	3	4	4	*	5	
	-	17.9	18.7	19.5	20.2		-	22.0	22.5	23.0	23.4	23.8	24.1	24.4	24.7	25.0	
	9	7	00	•	0	0	+	2	2	cv.	M	м М	4	4	+	r.	
	16.0	7.	8	•	0.			1.	5	2	₩.	8	4	4	4	5	
	3	7	œ	6	6	0	,	-1	N	2	™)	3	4	4	4	4	
34	:5:5	16.9	18.0	19.0	19.F	20.6	21.3	21.8	22.4	22.8	23.3	23.7	24.0	24.4	24.7	24.9	
	50	ç	7	œ	٠.	C	+	7	5	~	3	∾.	4	4	4.	4	
	3.	Ś	7	œ	5	0	-	1.	2	2	3	· ·	4	4	.	4	
	5	ċ	7	60	6	0	÷	1	2	2	19	٠ س	4	4	-3 ▼	4	
	5,	ζ.	7	oc	0	c	4	•	~	2	P)	3	4	4	4	*	
(M) (O)	15.2	16.6	17.8	18.8	19.7	20.5	21.2	21.8	22.3	22.8	23.2	23.6	24.0	24.3	24.6	24.9	
	5	9	7	100	6	0	+	+	2	2	+3	3	*	4	4	4	
	Š.	•	/	σC.	6	0	+ 1	+	8	6	M)	M	4	4	•	4	

MAXIMUM FILLING COVER FACTO S (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =0.96

x > 0 x m t	1					1		BET				1				
K11	0.5	0.6	n.7	0.8	6,0	1.0	1.1	1.2	1.3	1.4	1.5	1.6)	1.8	1.9	
4 	•	•	•			8	•	•	0	0	0	. 0	0	0	1	9
														0	0	•
		0			0	0				0	.0	0	0	40.6	31.2	6
	0.									•	0			a)	7	7
									0	•		7.	ø.	9		•
19	0	0.	0	0	0	0	0	0	29.5	•		ic.	5	R.	5	
20	0				0.	0	÷	•	ď.	5	NO.	5	'n.	50	2	5
	0					7	S.	4	*	4	4	4	+	5	5	Š
		0	0	0	5	٠.	23.4	23.5		3	24.2	24.4	4	4		'n
				3	0	2	å	3	3	(~)	3	4	4	*		5
	0	35.7	21.9	21.4	•		5	2	3	23.4	3	•	•	24.7	25.0	•
25		ċ	Û.	0	0		~	ri	2	3	3	4	4	4	4	Š
	6	8	ó	-	0	-1	÷	2	ċ	M)	, 10	م	4	•	4	ů.
		18.0	18.9	19.7	20.4	-	•	25.2	22.7	M	_	23.9	24.2	24.6	24.8	
	6.	7.	80		0	0	•	5	2	~)	M	∾.	4	•	4	5
		7	œ	0	0	0	21.5	5	·	•		ريا •	•	•	4	5
	S	7	œ	6	0	ū.	+	8	2	3	30	₩)	4	4	4	S
	٦.		œ.	6	0	0		2	2	٠ س	3	19	4	4	•	5
	15.5	16.9	18.1	19.1	19.9	20.7	21.3	21.9	25.5	23.0	23.4	23.8	24.1	24.5	24.8	25.1
	۲.	9	30	6	0.	0	-	•	?	å	3	3	4	4	4	S.
46	•	\$	8	•	6	•	+	+	ò	8		3	4	4	4	ŗ.
_	5	¢	7.	œ	•	0	1	+	ò	2	M	3	4	4	+	Š
	'n	ċ	7	80	6	0	-	-	iv	å	3	3	4	4	4	ď\
37	15.2	16.7	17.9	18.9	19.R	20.6	21.3	21.9	22.4	22.9	23.3	23.7	24.1	24.4	24.8	25.0
_	5	\$	7	0	٠.	0	•	-	2	6	2	3.	4	4	4	r.



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =0.97

								8ET					1			6
X	6 - 5	0.6	0.7	0.8		1.0		1.2	1.4	4.	1.5	1.6	1.7	60	6.4	2
4-1								•	•	. 0		0		6	0	
															0	0
												0	0	0	~	•
			0			0	0	0	0	0	0	45.2	30.6	28.8	28.0	27.6
									0	•		8	7	9	9	÷
	0	c.	0	0	0			0			•	•	•	•	•	. 9
20	0					0	5	7	נו	r.	5	Ŋ.	5	5	K ,	5
						80	5	4	4	4	4	4	5	R.	3	Š
					50	4	3	M	3	24.1	4	4	24.8	5	25.3	25.5
			0	3	2	2	~	3	3	~	4	4	4	4	5	5
	0.	c	22.4	21.6	21.7	22.0	22.4	22.8		3	23.9	•	4	24.8	5	5
		c	c	C	•	4	C	C	, M	M		4	4	4	2	r.
	0	. 0	. 0							M.	, M	4	4	4		3
			19.0	40.6	. 0	• •	4 +4	22.3	22.8	23.2	23.6	24.0	24.4	24.7	25.0	
	9		တ	0	0	-	•	S	2	3	3	4	4	4	5	5
				6	20.5	C	•	8	~	ريا •	m	4	4	*	4	5
30	9	7	œ.	9	0	0	÷	5	2	3	10	3	4	4	4	5
	S	17.1	-	19.2	0	•		22.1	22.6	23.1	23.5	23.9	24.3	24.6	24.9	25.5
	Š	۲,	œ	6	0	с С	-	Ci.	2	3	50	3	4	4	4	'n.
	5	6	ac.	6	9	0	+	2	ċ	5		3		*	*	Š
	5.	•		0	20.0	0	+	5	è	М.	3	3	4	4	4	5
SC.	•	ć	œ	6	0		•	2	2	3	*	3	4	4	4	5
	ر <u>ت</u> .	\$	00	0	0	0		2	2	3	10	2	4	4	4	5
	5		18.0	19.0	19.9	20.7	21.4	22.0	22.5	23.0	23.5	23.9	24.5	54.6	24.9	S
	5.		•	•	0	0	-	8	~	3	•	•	4	•	*	

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.98

A 50								4	_								
FACTOR	0.5	0.6	0.7	0.8	0.0	1.0	1.1	1.2	1	1.4	1.5	1 -	1.7	1 00	4.9	2.0	•
1 4	1	1	0.0		0.	0.	0.	0.	•	0	6	0	0 .	-	0		î
															0	0	
		·		ů	0.	0	0	0		0	9	0	0	•	33.1	30.3	
											9	0	-1	•	8		
									0	0	•	•	~	•		•	
19	Ú,	0	0		0			0	31.6		9	•	•	•	•	•	
						0	•	7	•	5	5	5	2	5	8	40	
	0	-	0		0.	6	-	25.0	4	4	4	5	5	5	2	5	
					9	4	P)	3	4	4	4	4	5.	5	5	5	
			C	4	3	2	3	3	P)	∾	4	4	4	5	50	S	
0	0	0.		21.9	21.9	25.2		2	23.3	23.7	24.0	24.4	24.7	25.0	25.2	25.5	
~ 25			ċ	ċ	÷		0	0	P.	•	-	4	4	4		ď	
	0	19.3	0	0	0		2	2	M	5	, P	4	4	*	. '0	, R	
	7	œ.	6	6	0		-	2	5	₩.	P)	4	4	4	5	5.	
	9	7	8	6	0	+	-4	2	5	3	2	*	4	4	5	Ŋ.	
		1	*	19.5	•	21.1	21.7	22.3	28		23.7	24.1	24.4	24.8	25.1	25.3	
U *	ν.	7	α	0	c	•	•	C	0	~	,	4	4	4	~	ir.	
	5	, '	00	6	0	0		2		2	, m	4		4	2		
	5	17.1	18,3		20.1	0		•	8	8	1	+	4	4	5	S LO	
	S	7	œ	0	0	0	+	è	2	m	L	4	4	4	80	5	
46	15.5	7.	c c		•	20.8	21.5	22.1	22.7	23.2	23.6	24.0	24.4	24.7	25.0	25.3	
-	S.	·	80	φ.	0	0	•	~	~	•	1	4	4	4	5	5	
	3.	ć	α.	6	0	0	-	~	5	3	3	4	4	*	5	5	
37	15.4	16.8	18.1	19.1	20.0	20.8	21.5	22.1	22.7	23.1	23.6	24.0	24.4	24.7	25.0	25.3	
	r.	ť	œ	•	0	0	•	5	3	3	3	4	4	**	5	ż.	

MAXIMUM FILLING COVER FICTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.99

30 - 1		1 4 1 .	\ C C	6.00	6.0	F C	11.10	101	1.3	4	21.0	1.5	1.7	14:0	1.9	2.0
								• •		• •	• •			•	. 0	
											00	0.0	20.	0 6	4 00	
		 c c				00			33.5	28.4	32.0	28.9	27.8	27.4	27.1	27.1 25.5
			· ·		• •	00	C 43	28.5	26.6	24.9	25.7	S	25.8 25.4	25.9	26.0	26.2
				C U		4 4	24.2	4 4	4 4	4 4	4 4	4 4	₹. 4	ro r	25.	r, r
							5 0	. n	מו מ		4	4	4	. 10) (C)	
	00	22.2 19.6	20.9	21.1	21.5		22.4	22.8	23.3	23.6	24.1	24.4	24.7	25.0	25.3	25.6
		α α	0 0	00	0 0	+ -	٠ ٠	25	M W	w) w)	W W	4 4	4 4	₩. 4	25.	. n
1 +-1			• • •	. 0	0	1:		· ·	8	, m	M	4	4	4	25.	3
	·	7.	oc.	6	0		1.	0	8	3	3	4	4	4	25.	5
	ċ.	7.	ac 0	0 (0	٠,	• •	· ·	· ·	m ,	m 1	4 .	4.	4 .	200	ر ا
		17.2	1 X 4 . 4 . 4 . 4 . 4 . 4 . 4 . 4 . 4 . 4	40.4	20.0	21.0	21.7	200	22.8	20.00	23.7	24.7	24.5	2.4.0	25.2	25.4
	3	7	00	6	Ċ.	+		·	8	3	P)	4	4	4	25.	Ę,
<u>بر</u> ب	υυ 	17.0	18.2	19.3	20.1	20.9	21.6	22.2	22.8	23.3	23.7	24.1	24.5	4 4	25.1	25. 25. 4.
	· ·	ċ.	oc 0	0	<u> </u>	0	•	20	o o	3.	m 1	4.	4 .	4	25,	5
	'n	ċ	α α	o.	0	O		5	$\dot{\sim}$	٠,	(A)	4	4	4	25.	ζ.

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #1.00

A C																
OVER	1				1	1	 	BET	1	1	1	ı	ı		1	- 1
	0.5	9.0	0.7	0.8	0.0	1	1.1	1.2	וייו	1.4		1.6	1.7	₩ .		2.0
14		0.0			. 0	0.		0		, , ,	ı	0 .	0		1	.0
	0														•	•
						0.	е •	0.		0	0	0	0.	0	36.3	+
											ċ	0			•	•
									0	0			80	7	7	7
	0.		0	C	0			0	37.2		7	9	•	•	9	•
		<u>۔</u>				•	•	6	1	•	9	rU.	•	9	9	•
					0	60	6	5	r,	5	5	5	r.	5	5	•
				•	•	5.	24.5		4	24.6	24.8	5	5	5	6	•
			0	9	3	3	ارا •	3	3	4	•	4	5	5	5	5
	0		24.5	22.5	22.4	25.6	2		•	4	4	24.7	25.0	•	25.5	25.8
25	0	m)	•	-	•	~	~	m	3	3	4	4	4	5	5	ņ
	•	0	\subset	0	+	• •-4	22.3	22.8	23.3	23.7	24.1		•	25.1	25.4	
	a .	oc.	•	ċ	0	4	2	5	3	3	4	4	4	5.	S.	3
		60	6	ċ	0	, ,,,	2	2	3	~	4	4	4	د	ν.	5
	\$	7.	18.9	19.8		21.5	-	8	3	3	3	4	24.7	in	3	
	16.3	•	œ	6	-	, ,-1	+	2	₩.	143	3	4	4	5	5	5
	9	7.	œ	0.	0	+	21.8	22.4	23.0	23.5	23.9			5	-	5
	5.	7.	σc	6	0	+	+	ò	5	3	PF)	4	4	5	5	5
	5	7	œ	6	ċ		-	ċ	ċ	3.	3	4	4	5	S	r.
	5	1		19.4	0	21.1	-	ċ	•	~	3		4			•
	S				C	-	-	8	•	~	(A)	4	4	5	5	5
	5.	۲.	œ.	0	0	+	-	?	1	3	٠,	4.	4	5	5	5
	·.	7.		5	0	21.0	21.7	22.3	22.9	23.4	23.8	24.5	24.6	25.0	25.3	25.6
	ľ.	7	œ	6	0		.	ς.	3	3		4	4	رم د	IL.	5.



MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #1.36

KARP COVER FACTOR	1 1 1	1	1 1	1	1	!	1	98 1	1	; !	1 6 1	1	1	1	b 1	1	i
X	: : ::	6.1	1.1		0	1.0	F	1.2	1.3	1.4	ert 1	1.6	1.7	1.8	1.9	2.0	i
98	•					•	. 0	. 0	. 0	0	0	0	0.	0	0	56.	
1 6							•		•	•	•	•	0	7	•	5	
00										0	c	0	7	4	m	2	
21						0	· c	0	0	0	38.9	34.3	32.8	32.2	31,9	31.8	
25							0	C	0	4		4	•	7	4	-	
23										4-4	0	0	0	0	0	0	
4 6			0				4	;	0	0	6	0	0	0	0	•	
25		ċ	· =		0	å	0	6	00	6	0	6	0	6		C	
26				0	0.	60	œ	80	00	80	œ	φ.	0	٠ د	0	0	
23			0	8	7	7	7.	7	7	60	ac	œ	6	6	6	0	
28		Ċ	œ	9	9		9	7	7	28.0	ac :	8	0,	29.4	•	ċ	
62	0		5	4	5	25.8	26.3	26.8	27.3	1	•	28.6	29.62	0	29.7	30.0	
30	0	w.	23.7		24.8	ĸ	€.	•	7	7	Œ	60	œ	0	•	0	
7.1	2	2	3	M	4	5	25.9		27.1	27.6	•	Ø	28.9	29.3	_		
32	0	•	5	8	4	'n.	5.	9	7	7.	œ	8	œ	6	•	6	
33	6		2	*	4	4	٦.	6.	\$	7	æ	æ	.	٠ 6	•	•	
4	19.4	·	· ·	×.	4	24.8	5	9	9	1	7	28.4	œ	0		0	
iC.	•		•	5	M	4	i.	•		7	7	80	00	6	•	6	
36	æ	٠	•	2	3	4	ŗ.	•	\$	7	-	8	ж Э	6	0	6	
37	3 0	ċ	•	5	3	4	25,4	26.1	26.8	27.3	27.9	28.3	28.	29.1	29.5	•	
38	œ	-	-	ċ	3	4.	5	•	9	7.		ω,	αC	•	•	φ.	
39	OC	c=	-	22.6	8	24.6	2	9	•		7	ю Э	œ	6	0	0	
4 0	œ	·		2	3	4	5	÷	¢	7		00	90	0	6	•	
41	\mathfrak{X}		21.4	25.6	23.6		25.3	26.1	26.7	27.3	27.8	28.3	28.7	29.1	29.5	29.8	
42	•	0		~	•	4	٦.	÷	9	7	7.	œ	8	6	6	6	

YARN BULK DENSITY =1.48

	1	1 1 1		; ; ; ;	•	ı	i	<u>⊢</u>	1	F	ı	t		; 1	1 0 1	1 1
3 ¥2 □	0.5	9.0	7.0	0	6.0	1.0	+ 1	1.2		1.4	4.5	1.6	1.7	₩ I	4.9	
1 8 T			•	0	•	. 0	•	0.0	•	•		. 0	0		0	. 0
	• 0	·		0				•				•		•	•	•
20												•	0	ы.	7	9
21									0.		0	5.	7.	5	4.	+
22										0	٠.	ت	4.	ы	ю •	ъ.
23	0	0	٠		0		0	0	01	35.9	33.7	32.9	32.6	32.4	32.4	32.5
24						0				2	2		1.	,	'n	ċ
25				c	Ċ		ý	ζ,	÷	,	•	-	<u>, </u>	•	-	•
, ° C	· .		• •	. 0	ò	34.5	31.2	30.4	30.2	30.7	30.5	30.7	30.9	31.2	31.4	31.7
27					•		6	6	Ġ.	6	0	0		#	-	•
5 8				•	Ø	œ)	æ	8	6	6	•		0	0	ij	÷
56			31.4		7.	7.	7.	80	œ	6	•	0.	0	0	÷	
30		·	ç	9	•	7.	7	80	φ.	6	6	6	0		+	-
31	0.	25.5	25.0	25.4	26.0	26.7	27.3	27.9	28.4	28.9	29.4	29.8	30.2	30.6	30.9	31.3
32	4	8	4	4	5.	•	7	7	8	8	٠.	6	0		•	$\ddot{\cdot}$
33	\sim	÷	M	4		•	•	7	æ	œ	•	٠ •	•	0	0	÷
46	•	÷	m	4	v.	ý	.	7.	60	ω	•	6	0	0	•	:
35	6	•	ь.	4	Ŋ.	-₽.	é	7	€	80	6	•		0		+
36	•	<u>.</u>	?	4	5.	ů.	•	,	œ	80	•	٥.	0	。	•	;
37		21.3	22.7	23.8	24.9		26.6	27.3	28.0	28.6	29.1	29.6	30.0	30.4	30.8	31.1
38	<u>,</u>	•	5	×.	4	ņ.	ç	7.		æ	Ġ.	6	<u>.</u>	0	•	;
39		÷	2	ъ.	4	ŗ.	ċ	7.	7	œ	•	6	0	•		;
	·	<u>.</u>	2	κ.	4	5.	•	7	7.	ဆ်	•	ò	0	0	e.	÷
41	19.2	9. ŋ.	22.3	23.6	24.7	25.6	24.5	27.2	27.9	28.5	20.0	29.5	30.0	30.4	30.8	31.1
	٠. د	ċ	÷	8	4	5.	÷	7.	7	œ	•	6	0		6	÷



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =1.50

								BET		1	1		1				-
X	0.5	9.0	0.7	0 . 0	0.0	1.0	1.1	1.2	1.3			1.6	1.7	8 1	4.9	2.0	1
181		•	0	0	. 0		0	0.		0	0	0	0.	0.	0	0.	
		0	ċ	0	0				•		•			•		•	
	٠.												0	0	•	9	
		c	0			0	ů	0	0.	0	c	0	39.3	36.3	35.1	34.5	
	.0				0.					0	e eri	9	4	M	P)	3	
								•	0				M	2	ċ	ċ	
	0	c C	0		0		0.			m	2	٥.	5	2	8	2	
	0					0	0	100	•		-	-	•	-		2	
						9	+	0	0	0	0	0		-	-	-	
					ď.	0	0.	6	6	0	6	0	0	•	÷	;	
	0	٠.	0	34.2	29.6	28.9	28.8	29.0	29.4	29:7	30.1	30.4	30.7	31.1	31.4	31.7	
				•	7.	7	œ	œ	6	6	0	0	0	÷	+		
		4	7	,	ç	7	7	00	60	6	0	0	0	0	**	+	
	0	26.3	25.5	25.8	26.3	56.9	27.5	28.1	28.6	29.1	29.6	30.0	30.4	30.8	31.2	31.5	
	3.	4	4	n,	5	9	7	7.	8	6	•	O	Ċ.	0	-	+	
	\mathbf{c}	~	3	4	r.	9	7	1	œ	60	6	6	0	0	+		
34	•	· .	8	4	5.	•	7.	7.	œ	œ	6	6	0	0	+	+	
	0	~	M)	4	5.	•	¢	7	œ	80	0	0	0	0			
	0.	*	3	4	ς.	ć	Ġ	-	œ	œ	6	ó	0	0.	+	÷	
	5	-	2	4	50	9	è	7	8	80	0	ъ.	0	0	1.	+	
	19.7	21.3	22.7	23.9	25.0	55.9	26.7	27.5	28.1	28.7	29.3	29.8	30.5	30.6	31.0		
39	•	•	0.		4	5	ċ	7.	80	œ	0	6	0	0			
	3		~	K	4	7	•	7	80	න න	6	0	0	0	-0	4-4	
4 1		21.0	22.5	23.8	24.9	25.8	26.7	27.4	28.1	28.7	20.5	29.7	30.2	30.6	31.0	31.3	
		•	N	*	4	ĸ.	ć	7	8	œ	0	6	0	0	*	+	

YARN BULK DENSITY =1.77

FABRICS	
WEAVE	
FOUR-HARNESS	

A F B								BET			1		1	1	1		
FACTOR [K1]	0.5	9.0	0.7	0 • 8	6.0	1.0	1.1	1.2	1.3	1 + 1 1 • 1	1.5	1.6	1.7	1.8	1.9	2.0	! !
1	1	•	ł	l i I	1	! ! !	1 1 1 1	f 5 F \$! !	! !]) 	
20					0			•	0								
21					0									0	0	4	
20					0.								0	'n	0	6	
, C					0.		0		0.	0.	9	54.8	41.1	38.8	37.7	37.2	
4.5	0		<u>-</u>	0	0.	0.	0.	0				8	7.	9	•	9	
,	•	,						c		c	-	•	ĸ	Ľ	ĸ	ĸ	
25					•		•		•	•	•	• •	•	•	•	·	
56		0			•	0	ċ	ċ	. ·	ø,	'n,		64.0	7.4.	55,1		
27						0	ò	è.	3	4	₹.	4.	4	4	4	*	
28		-			0.0	9	5	8	3	3	₩.	ъ.	δ.	4.	4	4	
000	• •		. 0	0	7.5	34.4	32.9	32.6	32.6	32.8	33.1	ъ.	ю М	4.	4.		
,																	
20					5	+	+	+	?	2	٠.	33.1	33.5	33.8	•	•	
) r				2			ċ	;	÷	2	~	ŝ	3	, M	4	4	
			2	6	6			0	÷	-	۲.	2	δ.	3	3	4	
) M		ς.	8	80	8	6	c	ö	+	;	ò	ς.	3	М.	m	4	
) ki	50.1	27.6	27.3	27.8	28.4	29.1	29.8	30.4	31.0	31.6	32.1	2	3	ъ	m	4	
•						,	(,		c	•			•	
35	\$	5.	Ġ	7	8	æ	6	0	•	;	2	,	;	• •	·	•	
36	4	4	5.	•	7.	8	٠ د	0	0	;	۶.	٥,	ċ	.	·	4	
37	×;	4	5.	9	7	æ	6	0	0	4		32.4	32.9	33.3	33.7	34.1	
80	~	~	5	Š	7	6	6	•	0	+	+	۲,	<u>۰</u>	, M	M	4	
6 6	22.0	23.6	25.0	26.2	27.3	28.3	29.2	59.9	30.6	31.3	34.8	۲,	۲.	ъ.	8	*	
•																	
4 0	1.	5	4	•	7.	8	6	6	ċ	Η.		5	2	m 1	m 1	4	
41		۳.	4.	ç		æ	Ġ.	6	•	.	+	٠. د	٠.	٠ •	, ,	4	
42	۲.	*	4.	.	7.	8	6	•	0	;		۲.	<u>٠</u>	٠,	,	4	
43	_	۴,	24.5		27.1	28.1	29.0	8.66	30.5	31.2	31.8	32.3	32.B	33.2	33.6	34.0	
4	21.0	65.2	•	5.	7.	œ	6	ċ	•		•	۲.	۶.	8	8	4	

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =2.00

OVER								BET		1		1	((
X - 1		9 1	0.7	60	6.0	0 1	₩ .		1.3	4 1	4.5	1.6	1.7	60 I	1.9	2.0	
		1		 () (c	•	c	c	c	C	ć	
		•		=	•												
				.	0											ت	
				<u>-</u>	0										0	5	
				_	0								0	0	•	42.7	
24	c c	٠,	U	0	0.		0	0.	0.	0.	6	0.	48.6	43,0	-	0	
		•			c							4	•	o	0	ď	
		•								> ı	•	ř	• -i (•		
									0	3	ċ	•	00	œ	20	10	
					0			<u>.</u>	7	0	œ	7.	7.	7.	7.	7.	
					0		0	4	6	7		9	. 9	7.	7.	7	
	0	٠	<u>.</u>	0	0	0	43.4	37.9	35.6	36.2	36.1	36.2	36.4	36.6	36.8	37.1	
						è	•	Ŋ.		5.	K)	5	Š	, D	•	· o	
				•	, M		4	4	4	4	v	3	ي.	0	. 9	1	
				c,	5	3	3	8	_		4	5	5	35.9	8	ò	
				4	2	2	?	3	3	4	4	5	3	'n	•		
	.	·	34.3	31.8	31.6	31.9	32.3	32.9			•	34.9	35.3	5		36.4	
ŭ		u	c	c	c		c	c	۲	~	4	4	LC.	u	×	(
		•	•	•	•	•			•) ?	•	•	•	٠,	٠,	•	,	
	•	٠ ٥	•	·	0		•	2	٠	ر. د	4	4	٠	ŗ	•	•	
	6	7	œ	6	6	0	7	2	è	~)	4	4	v.	S	ľ.	•	
	9	ċ	7		6	0	*	?		33.4	34.0	34.5	35.0	35.5	35.9	\$	
	24.0	26.0	27.2	28.4	29.4	30.4	31.2	32.0		•	m;	4.	5	Š	5		
														ł			
0 4	4	r.	è	æ	6	0	+	• • •	ci	3	9	4	N.	N	2	•	
41	٠,	5	9	80	6	0	, ,	1.	6	3	3	4	4	'n	S		
42	5	r.	9		ъ	0	•	+	2	٠ •	F)	4,	4	<i>ا</i>	r.	. 9	
	2	4	9	7	8	0	0	•	~	3.	8	4	4	Ŋ.	5	. 9	
4	22.7	24.6	26.2	27.6	28.8	56.6	30.9	31.7	32.5	33.2	33.8	34.4	34.9	35.3	35.8	36.2	

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =2.36

FOUR-HARNESS WEAVE FABRICS

FACTOR													(•
1	0.5	9.0	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1 1	1.5	1.6	1.7	8	9 1	0
22	0	•	! ! •	•			0	.0		, 0	0	0	0	0		0
						•							•			
																4
													0	6	•	\$
												0	4	7	4	N7
						O	0	0	0			49.8	45.3	43.6	42,8	
										0		3	2	ċ	.	÷
			· •								2	+	-	+	•	-
				.0	0			0	4	-	0	0	0	0	0	0
						•	0	3	0	6	6	6	6	6	0.	0
					•	ů.	45.6	39.9	39.1	38.8	38.9	39.1	39.3	39.65	39.9	40.5
					·	•	6	8	œ	ф Ф	φ	о О	•	0	•	0
			0.		Ľ	œ	7.	۲.	7.	7.	8	о О	œ.	ò	•	•
				4	7	•	•	•	•	~	7	80	60	0	6	0
			C	÷	s.	35.3	35.4	36.0	36.5	37.0	37.5	38.0	38.4	38.9	39.3	39.7
			9	4	4	4	3	5	•	•		7	о Ф	φ.	•	•
		0.0	₩)	×	3	4	4	5	•	•	7	7	60	φ	•	•
		5.6			5	×2	4	ŗ.	Ŋ,	•	7	`	60	œ	•	6
0	2.9	'n		•	2	₩.	4	5	5	9	7.	7	80	80	0	0
	9.1	9.3			2.2	33.2	34.1	34.9	35.6	36.3	37.0	37.5	38.1	30.5	39.0	39.4
C	7.5	8.5	5		2.0	3	4	4	'n.	9	\$		œ	œ (0	•
ĸ	6.7	٥. ٢	6	ċ	1.8	cv	3	4	Š	9	•	7	00	ص	ි. ආ	•
₩.	5.0	9.7	•	· c	1.7	~	3	4	5	9	•	7	60	œ	• •	0
2	5. d	7.3	œ.	0		~	ь.	4	īυ.	9	C	37.4	37.9	38.4	38.9	6
2	۲.	0.62	28.7	30.2	31.5	32.6	33.6	34.5	35.3	36.1	36.7	7.	7.	8	œC	39.3



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =2.50

			1	1		1	1	96	i I	1		1	0 1 8 6		1 1	1
XX	۵.5	9,0	0.7	C	. 0	1.0	1.1	1.2	1.3	4	5.5	1.6	~	1.8	3	2.0
22		i .			1 •	. 0	1	•	0	0	•		0		.0	0
											€					
									ċ							
																~
													0		6	9
					0		0	0	0	0		0	-	47.3	45.5	44.7
														4	3	3
	0	·	0.	.0	0.	0.	0.	0.			47.4	4	M	3	2	·
								•		9	143	2	~	2	0	~
							. 0	61.0	45.0	42.6	41.8	41.5	41.4	41.5	41.6	47.8
									+	0	0	0	0	+	-1	+
							3	0	0	6	6	·	-	0	*	+
	0	0.	0.			43.5	0	•	6	6	6	6	0.	0	0	+
					س	6	æ	00	60	80	0	0	6	0	0	+
	· c	·		\$	38.6	37.5	37.3	37.6	38.6	38.4	38.8	39.3	39.7	40.1	40,5	40.9
					Ś	9	9	7.	7	80	œ.	6	6	0	0	0
			œ	5	رح	5	•	9	7	7	60	6	6	6	•	•
		42.1		4	•	S	5	ç	7	7.	80	80	6	6	0	0
4 0		4	5	3	4	4	5	9	7.	7.	œ	80	0	6		0
	3.	•	+	2	3	4	5	9	9	-	a	œ	0.	•	0	0
24	30.5	30.3	31.2	32.2	33.2	34.2	35.1	35.9	36.7	37.4	38.0	38.6	39.5	39.7	40.1	40.6
	80	6		•	3	4	5	5	•	7.	æ	œ	•	•	•	0
	~	œ	<u>-</u>	÷	5	3	4	5	9	7.		ю С	•	0.	0	0
	ç	ac	-		2	; ;~;	4	r.	•	7	7	œ	6	0	6	ó
46	26.3	JA . 2	8.62	31.2	32.5	33.7	34.7	35.6	36.4	37.2	37.9	38.5	39.0	39.6	40.0	40.5

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #2.75

								BET				1	1		i 1	
A X	0.5	9.0	0.7	9	0		1.1	1.2	1.3	•	1.5	1.6	1.7	1.8	4.9	2.0
2 -		0 .			0.				•	0	0	0	0	0	•	
	0						0	0		0.						
					0.							0.				
				c												•
	0				0											1
	0	· c			0	0	0	0	0	0	0	0	0	0	3	50.0
					0.		0					0				7.
	0		0.	0.	0.					-			•	7	·.	•
0				·	0					•	1	60	•	r.	80	5
				_						· •		5	*	*	+	4
	0			_					0	•	4	4	*	3	3	4
		C		c .	0.	0	0	50.4	45.2	43.8	43.2	43.1	43.1	43.3	43.5	43.7
	0	·	. 0		-			4	2	2	2	3	2	2	3	3
					0	M	2	~	÷	-	•	0	à	2.6	~	3
	0	. 0		0	0	43.5	41.3	40.8	40.8	41.0	41.3	41.6	42.0	45.4	42.7	43.1
	0			<u>.</u>	5	0	•	0	0	0	0	7	٠ •	2.2	2	3
				a,		•	6	6	6	0	0	-	+	2.1	8	è
		9.	6.0.7		8	Ф	00		0	•	6	+	+	1.9	ò	ò
4			5	7.	•	7	7.	60	6	6	0	0	÷.	1.9	Ç.	2
4		~	Š	5	. 9	•		8	60	•	6	0	1	1.8	~	è
	0	35.6	34.5	34.9	35.6	36.4	37.2	38.0	38.7	39.4	40.1	40.7	41.2	41.7	42.2	42.6
43	9	κ,	3.	4	5	6.	~	7.	80	6	0	0	+	1.7	2	ċ
4		•	۲.	*	4	r.	9	7 °	8	6	6	0		1.6	è	s,
	=	•	~	M.	4	5	Ó	7	60	6	0	•	•	1.6	2	2
94	20.0	30.4	31.0	33.2	34.4	35.6	36.6	37.5	38.3	39.1	39.8	40.4	41.0	41.6	42.0	42.5



MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =2.95

75 0.5 0.5 0.6 0.0	A N C C C C C C C C C C C C C C C C C C								H	4							
75	ACT0	0.5	1 6	0.7	1 60	0.0	1.0	 	1.2	1 . 1	4	1.5	1.6	1.7	1 60	1 1	2.0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 1 1	1 1 1	 	1 1 3	1 1 1	1	1 2 1	1	1 1 1	1	1 i 1	1 1 1	1 1 1	1 1 1		; ;	
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	25																
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	96																0
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	27														•	0	ò
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	80													0	9		51.7
6. n.	60													2	3	0	6
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 54.9 49.1 47.3 46.2 46.2 48.3 49.1 47.3 46.2 46.2 48.3 49.1 47.3 46.3 46.2 46.2 49.0 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	J.		· -										60		0	00	~
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 54.3 48.2 46.5 46.5 46.2 40.0 0. 0. 54.3 48.2 46.5 46.5 46.2 40.0 0. 0. 0. 54.3 48.2 46.5 45.4 4.9 4.0 0. 0. 0. 0. 0. 54.3 48.2 46.5 45.8 45.9 44.9 40.1 47.3 46.5 45.4 4.9 4.0 0. 0. 0. 0. 0. 54.3 48.2 46.5 45.8 45.9 44.9 44.0 0. 0. 0. 0. 0. 0. 54.3 48.2 44.0 44.1 44.3 44.9 44.2 44.0 0. 0. 0. 0. 0. 0. 0. 46.5 43.4 43.3 4.3 4.3 4.3 4.3 4.3 4.3 4.3 4	, ,										, C			, a	7	4	4
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 54.3 48.2 46.5 45.8 45.9 45.9 45.9 40.9 40.0 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	10		= c								•		٠ ٦ د				
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 54.7 47.5 45.6 45.0 44.8 44.9 44.9 40.9 40.0 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 46.5 44.1 43.4 43.3 43.4 43.2 43.6 43.9 44.2 40.0 0. 0. 0. 0. 46.5 44.1 43.4 43.3 43.4 43.2 43.6 43.9 44.2 40.0 0. 0. 0. 0. 45.6 42.4 42.6 42.4 42.6 42.9 43.2 43.2 43.9 44.2 40.0 0. 0. 0. 0. 47.6 42.7 41.7 41.6 41.8 42.1 42.5 42.9 43.3 43.8 40.0 0. 0. 0. 0. 0. 43.8 39.2 38.7 39.9 40.4 40.9 41.5 42.0 42.7 43.2 43.6 44.0 40.0 0. 0. 43.8 39.2 38.7 38.9 39.0 39.7 40.9 41.5 42.0 42.7 43.2 43.6 43.0 43.5 40.0 0. 0. 43.8 39.2 38.7 38.3 39.0 39.7 40.1 41.1 41.7 42.2 42.7 43.2 43.6 43.3 40.0 0. 40.1 40.9 41.6 42.2 42.7 43.2 43.3 44.0 40.1 40.1 41.1 41.7 42.8 43.3 42.8	2 14		• = c							• > •	• a		٠ لا				A 10
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	0.0		=						·		• u	0 1	•		•		· u
0. n.	4		0						4	•	٤.	ν.	থ	4	4	Ċ	
0. F. H. O. O. O. 46.5 44.1 43.4 43.3 43.4 43.6 43.9 44.2 4.0 4.0 6 42.4 42.6 42.9 43.2 43.6 43.9 44.2 4.0 4.0 6. H. O. O. 47.6 42.7 41.7 41.6 41.8 42.1 42.5 42.9 43.2 43.8 4.0 4.0 6. H. O. O. O. 47.6 42.7 41.7 41.6 41.8 42.1 42.5 42.9 43.3 43.8 4.0 9. H. O. O. O. A3.8 39.2 38.7 39.9 40.4 40.9 41.5 42.0 42.7 43.2 43.6 4.0 1.0 0. 43.8 39.2 38.7 39.9 40.4 40.9 41.5 42.0 42.7 43.2 43.5 4.0 1.0 0. 43.8 39.2 38.7 39.9 40.0 41.5 42.0 42.2 42.7 43.3 4.0 43.5 4.0 1.0 0. 43.8 35.2 36.3 37.3 38.7 39.5 40.1 40.8 41.5 42.1 42.6 43.1 4.0 1.0 32.2 32.1 35.8 36.3 37.3 38.3 39.1 39.9 40.7 41.4 42.0 42.6 43.1 4.0 1.0 32.2 32.1 32.1 32.1 32.1 32.1 32.1 32.1	35		c.						9	4	4	*	4	4	4	4	S
0. 0. 0. 0. 0. 46.5 43.4 42.6 42.4 42.6 42.9 43.2 43.8 44.0 4 0. 0. 0. 0. 47.6 42.7 41.7 41.6 41.8 42.1 42.5 42.9 43.2 43.3 43.8 4 0. 0. 0. 0. 43.5 42.2 40.8 40.7 40.9 41.3 41.7 42.2 42.7 43.2 43.6 4 0. 0. 43.8 39.2 38.6 38.9 39.4 40.9 41.5 42.0 42.5 53.0 43.5 4 0. 0. 43.8 39.2 38.6 38.9 39.4 40.0 40. 41.2 41.8 42.4 42.9 43.4 4 0. 0. 43.8 37.5 37.7 38.3 39.0 39.7 40. 41.1 41.7 42.3 42.8 43.3 4 49.1 35.4 35.1 35.8 26.6 37.6 38.4 39.3 40.1 40.8 41.5 42.1 42.6 43.2 4 32.2 32.7 34.3 35.2 36.3 37.3 38.3 39.1 39.9 40.7 41.4 42.0 42.5 43.1 4 32.7 31.8 33.2 34.5 35.8 36.9 38.0 39.8 40.6 41.3 41.9 42.5 43.1 4 22.7 31.3 32.8 34.3 35.6 36.9 38.0 39.8 40.5 41.2 41.9 42.5 43.1 4 22.7 31.3 32.8 34.3 35.6 36.9 38.9 39.8 40.5 41.2 41.9 42.5 43.1 4 22.7 31.3 32.8 34.3 35.6 36.8 37.9 38.8 39.7 40.5 41.2 41.9 42.5 43.0 4 22.7 31.3 32.8 34.3 35.6 36.8 37.9 38.8 40.5 41.2 41.9 42.5 43.1 4 22.7 31.3 32.8 34.3 35.6 36.8 37.9 38.8 40.5 41.2 41.9 42.5 43.1 4 22.7 31.3 32.8 34.3 35.6 36.8 37.9 38.8 40.5 41.2 41.9 42.5 43.0 4	3.6		د				0	9	4	M	3	P)	~)	M)	4	4	4
6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6	37					•	9	PS	2	2	è	2	3	***)	4		44.7
0. 0. 0. 42.2 40.0 40.7 40.9 41.3 41.7 42.2 42.7 43.2 43.6 4 0. 0. 43.8 39.2 38.4 30.4 40.0 40. 41.5 42.0 42.5 43.0 43.5 4 10. 0. 43.8 39.2 38.4 39.0 39.7 40. 41.1 41.7 42.3 42.9 43.4 4 10. 0. 43.8 37.5 37.7 38.3 39.0 40.4 41.9 41.5 42.1 42.6 43.3 4 10. 0. 43.8 35.2 36.3 37.3 38.3 39.1 39.9 40.7 41.4 42.0 42.6 43.1 4 10. 35.2 33.7 34.8 36.0 37.1 38.1 39.9 40.7 41.4 42.0 42.5 43.1 4 10. 37.5 31.8 33.2 34.5 35.4 36.8 37.9 38.8 40.5 41.2 41.9 42.5 43.1 4 10. 0. 20.4 37.1 35.8 36.8 37.9 38.0 39.8 40.5 41.2 41.9 42.5 43.1 4 10. 0. 20.4 37.1 35.8 35.4 36.8 37.9 38.8 39.7 40.5 41.2 41.9 42.5 43.0 4 10. 0. 20.4 37.1 35.8 35.4 35.8 37.9 38.8 39.7 40.5 41.2 41.9 42.5 43.0 4 10. 0. 20.4 37.9 38.7 37.8 38.7 39.8 40.5 41.2 41.9 42.5 43.0 4 10. 0. 20.4 37.9 38.8 37.9 38.8 39.7 40.5 41.2 41.9 42.5 43.0 4 10. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	4.0		c		C	7	2	•	+	+	è	2	2	5	m	4	4
0. 0. 0. 42.2 40.0 39.7 39.9 40.4 40.9 41.5 42.0 42.5 £3.0 43.5 4 10. 0. 43.8 39.2 38.6 38.9 39.4 40.0 40. 41.2 41.8 42.9 42.9 43.4 4 20. 0. 0. 38.6 37.5 37.7 38.3 39.0 39.7 40 41.1 41.7 42.3 42.8 43.3 4 3. 6. 59.1 36.4 36.5 £7.1 37.9 38.7 39.5 40.2 40.9 41.6 42.2 42.7 43.2 4 49.1 55.4 35.1 35.8 26.6 37.5 38.3 39.1 39.9 40.7 41.4 42.0 42.6 43.1 4 35.2 52.6 33.7 34.8 36.0 57.1 38.1 39.0 39.8 40.6 41.3 41.9 42.5 43.1 4 29.7 51.8 33.2 34.5 35.6 36.8 37.9 38.8 39.7 40.5 41.2 41.9 42.5 43.0 4 29.7 51.8 33.2 34.5 35.6 36.8 37.9 38.8 39.7 40.5 41.2 41.9 42.5 43.0 4 29.7 51.8 33.8 34.3 35.6 36.8 37.9 38.8 39.7 40.5 41.2 41.9 42.5 43.0 4	39		<u>-</u>		M3	8	0	ċ	0	*	+	÷	5	•	m	4	
1. 0. 43.8 39.2 38.4 38.9 39.4 40.0 40. 41.2 41.8 42.4 42.9 43.4 4 2. 6. 10. 38.6 37.5 37.7 38.3 39.0 39.7 40 . 41.1 41.7 42.3 42.8 43.3 4 3. 6. 59.1 36.4 36.5 37.1 37.9 38.7 39.5 40.2 40.9 41.6 42.2 42.7 43.2 4 4. 49.1 55.4 35.1 35.8 26.4 37.6 38.4 39.3 40.1 40.8 41.5 42.1 42.6 43.2 4 35.2 53.7 34.3 35.2 36.3 37.3 38.3 39.1 39.9 40.7 41.4 42.0 42.6 43.1 4 5. 50.7 51.8 33.2 34.5 35.8 36.9 38.0 39.8 40.5 41.2 41.9 42.5 43.1 4 5. 50.7 51.8 33.2 34.5 35.4 36.8 37.9 38.8 39.7 40.5 41.2 41.9 42.5 43.1 4 6. 50.7 51.3 32.8 34.3 35.4 36.8 37.9 38.8 39.7 40.5 41.2 41.9 42.5 43.0 4 6. 50.7 51.3 32.8 34.3 35.4 36.8 37.9 38.8 39.7 40.5 41.2 41.9 42.5 43.0 4 6. 50.7 51.8 51.8 51.8 51.8 51.8 51.8 51.8 51.8	0 4		ت •	•	~	<u>.</u>	6	0	0	0		0	2	1 20	3	P)	4
0. 0. 38.6 37.5 37.7 38.3 39.0 39.7 40 41.1 41.7 42.3 42.8 43.3 4 6. 59.1 36.4 36.5 27.1 37.9 38.7 39.5 40.9 41.6 42.2 42.7 43.2 4 4 99.1 55.4 35.1 35.8 26.4 37.6 38.4 39.3 40.1 40.8 41.5 42.1 42.6 43.2 4 35.2 52.7 34.3 35.2 36.3 37.3 38.3 39.1 39.9 40.7 41.4 42.0 42.6 43.1 4 37.2 52.6 33.7 34.8 36.0 37.1 38.1 39.0 39.8 40.6 41.3 41.9 42.5 43.1 4 29.7 51.8 33.2 34.5 35.4 36.8 37.9 38.8 39.7 40.5 41.2 41.9 42.5 43.1 4 29.7 51.3 37.8 35.4 36.8 37.9 38.8 39.7 40.5 41.2 41.9 42.5 43.0 4	41		0	M	0	6	8	0	0	ò	,-1	•	2	2	3	m	4
5 6. 59.1 36.4 36.5 37.1 37.9 38.7 39.5 40.2 40.9 41.6 42.2 42.7 43.2 4 49.1 55.4 35.1 35.8 26.4 37.6 38.4 39.3 40.1 40.8 41.5 42.1 42.6 43.2 4 35.2 35.2 35.2 36.3 37.3 38.3 39.1 39.9 40.7 41.4 42.0 42.6 43.1 4 37.2 37.2 37.3 38.3 39.1 39.9 40.7 41.4 42.0 42.5 43.1 4 37.2 37.2 37.3 38.9 39.8 40.6 41.3 41.9 42.5 43.1 4 2 30.7 51.8 33.2 34.5 35.4 36.8 37.9 38.8 39.7 40.5 41.2 41.9 42.5 43.0 4 37.3 37.4 35.5 37.3 38.8 37.9 38.8 39.7 40.5 41.2 41.9 42.5 43.0 4 37.3 37.4 35.5 37.3 38.7 37.8 38.7 39.6 40.5 41.2 41.9 42.5 43.0 4 37.9 38.8 37.9 38.7 37.8 37.8	2		· c	œ	7	7.	8	6	6	0		-	2	2	3		44.
4 49.1 35.4 35.1 35.8 26.4 37.6 38.4 39.3 40.1 40.8 41.5 42.1 42.6 43.2 4 35.2 35.2 35.2 35.2 36.3 37.3 38.3 39.1 39.9 40.7 41.4 42.0 42.6 43.1 4 37.2 37.2 38.1 39.0 39.8 40.6 41.3 41.9 42.5 43.1 4 20.7 31.8 33.2 34.5 35.8 36.9 38.0 38.9 39.8 40.5 41.2 41.9 42.5 43.1 4 20.7 31.3 32.8 34.3 35.4 36.9 38.8 39.7 40.5 41.2 41.9 42.5 43.0 4 20.1 30.0 32.6 34.1 35.5 36.8 37.9 38.8 39.7 40.5 41.2 41.9 42.5 43.0 4 20.1 30.0 32.6 34.1 35.5 36.7 37.8 38.7 39.6 40.5 41.2 41.9 42.5 43.0 4 20.1 30.0 32.6 34.1 35.5 36.7 37.8 38.7 39.6 40.5 41.2 41.9 42.5 43.0 4 20.1 30.0 32.6 34.1 35.5 36.7 37.8 38.7 39.6 40.5 41.2 41.9 42.5 43.0 4 20.1 30.0 32.6 36.0 37.1 37.8 37.9 38.7 37.8 38.7 37.8 38.7 37.8 38.7 37.8 38.7 39.6 40.5 41.2 41.9 42.5 43.0 4 20.1 30.0 30.0 30.0 30.0 30.0 30.0 30.0 3	43		0	Š	¢	7.	7	φ	6	ċ	0	ب	8	2	×	3	4
35.2 33.7 34.3 35.2 36.3 37.3 38.3 39.1 39.9 40.7 41.4 42.0 42.6 43.1 4 52.2 32.2 34.8 36.0 37.1 38.1 39.0 39.8 40.6 41.3 41.9 42.5 43.1 4 7 30.7 51.8 33.2 34.5 35.8 36.9 38.0 38.9 39.8 40.5 41.2 41.9 42.5 43.1 4 24.7 51.3 32.8 34.3 35.6 36.8 37.9 38.8 39.7 40.5 41.2 41.9 42.5 43.0 4 20.1 30.0 32.6 34.1 35.5 36.8 37.9 38.8 39.7 40.5 41.2 41.9 42.5 43.0 4 20.1 30.0 32.6 34.1 35.5 36.7 37.8 38.7 39.6 40.4 41.2 41.8 42.6 43.0 4	4	·	5	5	ď	9	7	8	6	0	0	+	8	C.	3	n	4
32.2 32.6 33.7 34.8 36.0 37.1 38.1 39.0 39.8 40.6 41.3 41.9 42.5 43.1 4 30.7 51.8 33.2 34.5 35.8 36.9 38.0 38.9 39.8 40.5 41.2 41.9 42.5 43.1 4 24.7 51.8 32.8 34.3 35.4 36.8 37.9 38.8 39.7 40.5 41.2 41.9 42.5 43.0 4 20.1 30.0 32.6 34.1 35.5 34.7 37.8 38.7 39.4 40.5 41.8 42.6 43.0 4	4 7	3	M,	4	r.	9	7	00	•	6	0		2	C	3	2	4
30.7 31.8 33.2 34.5 35.8 36.9 38.9 39.8 40.5 41.2 41.9 42.5 43.1 4 29.7 31.3 32.8 34.3 35.6 36.8 37.9 38.8 39.7 40.5 41.2 41.9 42.5 43.0 4	4	(0	P.	4	\$	7	00	0	6	0		,	0	2	2	4
8 24.7 31.3 32.8 34.3 35.4 36.8 37.9 38.8 39.7 40.5 41.2 41.9 42.5 43.0 4	47	=		~	4	5	4	α	Œ	0	-	,	-	0	PAT)	M	4
0 34 1 50 0 72 6 74 1 35 5 36 7 37 3 38 7 39 6 40 4 41 2 41 8 42 6 43 0 4	. 00		• •	3	4	5	6		00	0	0			2	^ب		44.
	0.4	· .	, _C	2	4	5	9	7	00	0	0	-	-	~	(A)	m	4

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =3.25

			ı					99		11						
#C 0		9.6	ŭ . 7	0	6 0		1	1.2	1.3	4	<u> </u>	1.6	1 7 1	1.8	6.4	2.0
1	1		i i	1 1 1		1 1 1 1	1	! !	8	3	•	ŧ	1	•)	i
		<u>.</u>		0	0.											
					0											
					0											
	0	0	0	0	0	0	0		-	0	0	0.	C :	0	0	8
59	0.		0.		0.	0		0.	0.							
0.6	0			·	0									0	4	~
					0								7	2		0
	U	·		-	0	0	0	0	0	0.	0	5	52.0	50.6	40.9	49.5
											4		0	•	60	8
40	0	·	0	.0	0.							8	00	8	80	8
	0				0			•	3	•	•	7	7	7	7	7
					0		0	3	80	7	. 9	٠,	6	7	7	7.
	.	C	0	0	0.		54.8	48.3	46.6	46.1	46.0	46.1	46.3	46.6	46.9	47.2
	0				0		7	5	5.	5	5	5	9	9	÷	7
39						7	Ŗ,	4	4	4	4	5.	5		9	•
	ſ).				6	4	M	3	3	4	4	5	5	8	•	•
	0	C		4	4	2	2	è	M	3	4	4	5	5	. 9	9
42	•	0	0	44.3	41.9	41.6	41.9	45.4	45.9	43.5	44.1	44.6	45.1	45.6	46.1	46.6
	=			*	0	0	•	8	٠ د	3	19	4	5		•	. 9
4			0	•	6	0	+	+	ċ	^{الم}	2	4	·	ر. د	9	9
		÷	æ	60	•	6	•	+	2	3	M	4	4	5	5	•
		7	7	-	œ	·	<u>.</u>	+	?	2		4	4	5	5	9
47	œ.	55.7	36.1	37.1	38.2	39.5	40.2	41.1	41.9	42.7	43.4	44.1	44.7	45.3	45.8	46.3
		4	5.	÷	7	•	<u>.</u>	1.	+	2	3	4	4	. ·	5	•
	ċ	M;	r.	·	7.	œ	o.	0		3	8	4	4	ľ.	τ.	é

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =3.54

MARP COVER FACTOR		1	1	1	;	!	1	BETA	!			1	1	1	1	
X	0.5	9.0	0.7	0.8	6.0	1.0	1.1	. 1	4.3	1.4	1.5	1.6	1.7	1.8	4.9	2.0
0	- -	c	ċ	ċ		c.		0							+4	•
													•	÷	œ	5
												0	رم	•	•	3
					0	0		0	0.	0	0	61.9	55.7	53.6	52.6	52.1
	0	, O	0	0.	0		0	0				4	ò	+	-1	+
		ċ								0	+	• •••	-	0	0	0
									-4	3	-	0	0	6	•	0
						0	0	66.1	53.0	50.5	40.6	49.5	49.5	49.3	49.5	46.3
							0	2	•	8	60		8	œ	•	6
	0			0	0			0	œ	7.	7.	7	.	9	60	0
	0					S	œ	7.	9	7	7	7	~	80	60	•
					00	œ	•	\$	•	•	•	7.	7	ъ С	20	80
				6	6	•	45.5	45.3	45.6	46.0	46.4	46.9	47.4	47.9	48.3	48.8
				ċ	5	4	4	4	u)	5	•	9	7.	7	œ	œ
	· n	.0			43.5	43.3	M)	प	4		8	9	7.	ć	•	œ
			7	8	\sim	~	2	3	4	r.	15	9	7		80	- 60
	0	C	N	1.	+	ċ	8	3	4	Š	5		. 0	7.	8	8
		2	C	40.1	0	41.5	45.4	43.3	44.4	44.8	45.5	46.2	46.B	47.4	47.9	48.4
		6	8	0	0	+4	ò	~	FC	4	Š	9	•	7.	7.	8
	40.7	37.3	37.7	•	•	0	٠ د	ò	3	4	3	•	•	7.		œ
	· o	Š	7	00	•		•	2	m	4	R.	9	•	7	7	œ
	4	2.	,	ď	0	0	+	2	3	4	3.	5	9	7.	7	æ
	33.1	34.6	36,2	37.7	39.1	40.4	41.5	42.6	43.5	4.4	45.2	45.9	46.5	47.1	47.7	48.2
	$\stackrel{\cdot}{\sim}$	4	5	7	œ	сэ •	<u>د</u>	2	3	4	5	5	•	~	7.	60
	• •-1	3	5	7	8	0	;	2	3	4	Σ.	S.	•	7	7.	о О

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #3.75

WARE

VER CTO	1	1	1	1	1	1	1	8E	1	1			Ì	1	1	•	1
X	0.5	9.1	0.7	60	0.0	1.0	4.1	1.2	1.3	4	₹.	1.6	1.7	1.8	1.9	2.	0
) -		1)))) } })))))
										0.					Ġ	1	80
														0	6	0	•
					0								0	•	•	9	0
	9.	0	Ċ			0		0	0	0	0	0	64.4	58.2	55.9	54.	&
34	0.	0	0	•		.0		0					7	5	*	M	9
		6			0.		0.			0	8	•	4	153	2	C	7
							0	0	0	63.0	55.7	53.5	52.6	2	52.0	52.	0
					0			5	4	5	2	1	, m	+4	+	-	9
		0.			-					2	•	0	0	0	+		2
39	0	ċ	0	0				5	7	0		0.	0		c	0	0
4							÷	•	•	0	6	6	6	0		0	7
	0	с С	0	·	. 0	0	50.8	49.0	48.5	48.5	48.7	49.0	49.3	49.7	50.1	50.	S
						-	8	7	7	1	œ	80	٥.	6	6	0	M
						7.	•	9	7		7	ж ЭС	8	6	•	0	~
4	.0	ċ			7	•	5	\$	•	7		œ	8	6	6	0	+
				•	'n	4	5	5	•	•		80	80	6	6	0	0
	0	.0	~	44.7	43.8	44.0	44.5	45.5	45.9	46.5	47.2	47.8	48.4	48.9	49.5	.64	6
		ċ		è	<u>٠</u>	3	4	4	5	•	7	1	œ	œ	ô	0	•
			-1	•	Ċ,	ò	3	4	5		10	7	60	8	•	O	හ
0	. Û	1.	0	Ċ	•	ò	·	4	5	•	•	7	60	60	•	O	60
	5.	6	6	<u>-</u>	•	N	M2	4	5	5.	é	7	œ	90	•	9	7
	ж ж	7.	c	6	0	2	3	4	5	5	9	7	8	ου •	6	0	1
52	36.1	36.6	37.9	39.5	40.4	41.8	45.9	44.0	44.9	45.8	46.6	47.3	48.0	48.6	49.5	49.	7
	4	5	7	œ	0	-	2	3	4	ů,	•	7	7	60	6	0	7
	3	5.	7.	ď	0	•	~	3	4	S.	ç	7.	7.	o	•	0	9



MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #4.00

	1.7 1.8 1.9 2.0		0. 0. 19.	0. 72.6 63.	0. 69.5 61.6 58.	.7 60.5 58.0 56.	9.5 57.1 56.0 55.	6.4 55.3 54.7 54.	54.5 54.1 53.9 53.8	3.4 53.2 53.2 53.	2,5 52.6 52,7 53.	52.1 52.4	1.4 51.7 52.1 52.	1.1 51,4 51.8 52.	0.8 51.2 51.6 52.	0.5 51.0 51.5 51.	0.3 50.8 51.3 51.	0.2 50.7 51.2 51.	0.0 50.6 51.1 51.	9.9 50.5 51.0 51.	8 50.4 51.0 5	50.9 51.	9.7 50.3 50.9 51.	9.6 50.2 50.8 51.	9.6 50.2 50.8 51.	9.5 50.2 50.8 51.
1	1.6			0			9	8	55.7	3	•	51.8	-	0	0	0		6	_	6	6	0	6		œ	œ
•				. 0				7	58.3		2	•	•		6	0.	G.	6	48.8	œ	œ	48.4	8		•	٠ 60
	•	-					0	0	68.5	8	4	52.5	ب	•	•	6		8		8	7	47.6	7	•	/	7.
	F. 1								0	4		4	-	20.4	0	60	υĊ	7	•	7	~	46.8	•	•	•	· •
BET	4,2								0			80	3	51.2	6	00	7.	7	9	9	•	9	Š	45.6	5	r,
	+	. c				•						0	+	M	0	•	7.	•	46.3	٠.	5		4	44.6	4	4
	1.0	: c							0				0	ě.	4	50.4	00	•	5	5	44.6	_	5		3	F)
	0.0	•									0	•		•	•	•	0	7	5	4			2	•	ò	+
	•	! c				<u>.</u>					0.	0				0		0	7	5	43.6	CV	+	41.2	c	<u>.</u>
1	0.7	1 C				0.	0	<u>-</u>	0.	0	0	0		0				•	3	•	44.7	• •	•		0	6
	9.0	! c										0								0	70.8	5	+	39.8	œ	7
l i	0.5	_				0										0					0		0	43.3	œ	•
	4 - 7) F	3 0	33	34	35	36	37	3.8	39	4	4.1	42	40	4	45	46	47	84	64	50	7.7	52	53	ቢ. 4

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #4.13

								8€ T						,] 	1	
ACT0	0.5	0.6	7.0	0.0	6.0	10.4	1:1	1.2	1.3	1 4	1.5		1.7	1 1	1.9	2.0) (
l k	; ; ; ;	•		•	e	• •	 	1	 	1 5	l l î	i I	 	 			
	0.				0												
	0				0											•	
					0										0	60	
	0	0.		0	0								0.	0	66.3	61.6	
4.	0.	0	0	0.	0.	0.	0.	0.	0	0	0.	0.	0.	64.8	0	8	
	0			ċ	0						6	0	P7	6	,	7	
					-						· c	M.	ac	~	9	is	
										•		60	· · ·	3			
-	-									, . (M		2	4	4	4	4	
0 O	. 0	 . c							64.9	57.2	55.1	54.2	53.9	53.8	53.9	54.0	
4	0				0.	0.		0	7	4	3	5	3	3	2	^ر	
					0		0	7	3	8	<u>.</u>	2	~	ς.	*	3	
4	0.						æ	3	Š	-	-	+	2	Š	8	3	
-				-	0.	3	3	+	0	0	-	-	-	•	2	3	
4	0.	0	0	0	0.	53.9	50.9	50.1	50.0		50.6	51.1	51.5	52.0	-	52.8	
	ď				4	C	0	0	0	0	<u> </u>	_	•	-	0	~	
					· c	, o og	a	q	Œ	. 0		. c	•	, (+			
				• •		,			. a	•		•	4 c	•		י נ	
• •	•	- c		47.4	4	4.4	44.0	47.7	0 4	. 0	40.4	70.0	, מ י	5.4.2 5.4.4		10°C	
	•			• • i	• •	• •	•	•		•				•	•		
			•	,	ŗ.	'n	ċ	•	:	D	·			÷	-	N	
	0	7	4	4	•	5	√ C		7.	8	•	0	6	+	-	0	
	0	5.	<i>\cdot</i>	M	3	4	5	•	7	æ	•	6	0	•	•	5	
	~ .	42.1	41.6	4.5.4	43.4	44.5	45,5	46.5	47.4	48.3	49.1	49.8	50.5	51.1			
	43.0	=	<u>-</u>	•	3	4	5	9	7.	8	0	о [.]	0	-	**	3	
54	,	α,	Ċ		~	4	5	9	7	æ	ac.	6	•	-	•	2	



MAXIMUM FILLING COVER FACTORS (KZ) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #4.60

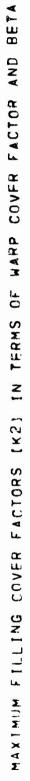
0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.0 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	A R D C C C C C C C C C C C C C C C C C C								8€			ļ			•	•	1
352 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	A C C C C C C C C C C C C C C C C C C C	0.5	9	0.7	80.0	6.0	1.0	- - -	1.2	1 1	4.4	1.5	1.6	1.7	1 . 8	4.9	2.0
3 U.	32	.0		0	0	0.0	0.0	0.0	0.0	0.	0.	0 .	•	0,0		• 0	0
9 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.														•	•	0	0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0																•	e
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0														0	+1	•	4
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0													0	+	7		+
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0													6.801	6.99	62.7	51.0	60.1
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0												0	.99	2	0	6	6
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0												•	1.	6	60	60	80
1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0										•	80	•	0.	80	7	7	7.
0. 0. 0. 0. 0. 0. 0. 0. 0. 65.5 57.6 56.1 55.0 0. 0. 62.3 57.6 56.1 55.0 0. 0. 0. 65.5 57.5 57.6 56.1 55.0 0. 0. 0. 0. 0. 0. 65.5 57.5 57.6 56.1 55.0 0. 0. 0. 0. 0. 0. 0. 0. 0. 59.4 54.6 53.4 53.2 53.3 53.4 50.0 0. 0. 0. 0. 0. 0. 0. 55.6 52.1 54.4 54.6 53.4 53.2 53.3 53.4 52.0 0. 0. 0. 0. 0. 0. 55.6 52.1 54.4 51.5 51.9 52.4 52.8 53.3 53.0 0. 0. 0. 0. 52.5 49.8 49.5 49.8 50.4 51.1 51.8 52.0 0. 0. 0. 0. 56.9 49.3 48.4 48.7 49.3 50.0 50.8 51.3 52.0 0. 0. 0. 0. 49.8 47.5 48.1 48.9 49.7 50.3 51.3 52.0 52.0 52.0 52.0 0. 0. 0. 0. 45.3 46.2 45.7 48.2 49.2 50.2 51.0 57.0 50.0 50.0 50.0 50.0 50.0 50.0 50									0		-	6	1	~	•	9	7
0. 0. 0. 0. 0. 0. 0. 0. 65.5 57.6 56.1 55.6 54.9 54.9 54.0 0. 0. 0. 0. 65.5 57.5 55.5 54.9 54.9 54.0 0. 0. 0. 0. 0. 65.5 57.5 55.5 54.9 54.9 54.0 0. 0. 0. 0. 0. 59.4 54.6 53.4 53.2 53.3 53.3 53.0 0. 0. 0. 0. 0. 55.6 52.7 52.7 52.3 53.3 53.3 53.0 0. 0. 0. 0. 55.6 52.1 51.4 51.5 51.9 52.4 52.8 53.3 53.0 0. 0. 0. 56.9 49.8 49.5 49.8 50.4 51.1 51.8 52.0 52.0 0. 0. 0. 49.8 47.5 48.7 48.7 49.3 50.0 50.8 51.5 52.0 0. 0. 0. 49.8 47.5 47.5 48.1 48.9 49.7 50.5 51.3 52.0 0. 0. 0. 49.8 47.5 47.5 48.1 48.9 49.7 50.5 51.3 52.0 0. 0. 0. 0. 49.8 47.5 47.5 48.1 48.9 49.7 50.3 51.2 52.0 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0					-			•	6		7	•	9	•	.0	9	9
0. 0. 0. 0. 0. 0. 0. 0. 65.5 57.5 55.5 54.9 54.9 54.0 50.0 0. 0. 0. 0. 0. 66.2 54.6 53.4 53.2 53.3 53.0 0. 0. 0. 0. 59.4 54.6 53.4 53.2 53.3 53.0 0. 0. 0. 0. 0. 55.6 52.7 52.3 52.4 52.8 53.0 54.0 54.0 54.0 54.0 54.0 54.0 54.0 55.0 52.7 52.3 53.3 53.3 53.0 0. 0. 0. 0. 55.6 52.1 54.4 51.5 51.9 52.4 52.0 52.0 0. 0. 0. 0. 52.5 49.8 49.5 49.8 50.4 51.1 51.8 52.0 52.0 0. 0. 0. 49.8 47.5 48.7 49.3 50.0 50.8 51.5 52.0 52.0 0. 0. 0. 49.8 47.5 48.1 48.9 49.7 50.5 51.3 52.0 52.0 0. 0. 0. 47.2 45.0 45.2 46.2 46.7 47.6 48.5 49.4 50.3 51.2 52.0 52.0 52.0 52.0 52.0 52.0 52.0 52									2		6	S	5		55.8	56.1	
0. 0. 0. 0. 0. 88.3 57.8 55.0 54.1 54.0 54. 54. 55. 53.3 53. 53. 0. 0. 0. 0. 0. 59.4 54.6 53.4 53.2 53.3 53. 53. 0. 0. 0. 0. 0. 66.2 54.6 52.7 52.3 52.4 52.8 53. 53. 0. 0. 0. 0. 0. 66.2 54.6 52.7 52.3 52.4 52.8 53. 0. 0. 0. 0. 0. 52.5 49.8 49.5 49.8 50.4 51.1 51.8 52. 0. 52. 0. 0. 0. 49.8 47.5 47.5 49.3 50.0 50.8 51.1 51.8 52. 0. 0. 0. 49.8 47.5 47.5 48.1 48.9 49.7 50.5 51.3 52. 0. 0. 0. 47.2 45.8 46.2 46.7 47.6 48.5 49.4 50.3 51.2 52. 0. 0. 0. 0. 47.2 45.3 46.2 47.2 47.6 48.5 49.4 50.3 51.2 52. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0								3	7.	5	4	4	54.9	•	5	•	•
0. 0. 0. 0. 0. 66.2 54.6 52.7 52.3 52.4 52.8 53.3 53.0 0. 0. 0. 0. 66.2 54.6 52.7 52.3 52.4 52.8 53.3 53.0 0. 0. 0. 0. 55.6 52.1 51.4 51.5 51.9 52.4 52.8 53.3 53.0 0. 0. 0. 0. 52.5 49.8 49.5 49.8 50.4 51.1 51.8 52.0 52.0 0. 0. 0. 49.8 47.5 47.5 48.7 49.3 50.0 50.8 51.5 52.0 52.0 0. 0. 0. 49.8 47.5 47.5 48.1 48.9 49.7 50.5 51.3 52.0 52.0 0. 0. 0. 45.3 46.2 46.7 47.6 48.5 49.4 50.3 51.2 52.0 52.0 52.0 52.0 52.0 52.0 52.0 52							æ	7	R)	4	4	4	•	4	S	5	9
0. n. n. n. 55.6 52.1 51.4 51.5 51.9 52.4 52.8 53. 0. n. n. 55.6 52.1 51.4 51.5 51.9 52.4 52.8 53. 0. n. n. 56.3 51.9 50.6 50.5 50.9 51.4 52.0 52. 1. n. 56.9 49.3 48.4 48.7 49.8 50.4 51.1 51.8 52. 2. n. 56.9 49.3 48.4 48.7 49.3 50.0 50.8 51.5 52. 3. n. 25.3 46.8 46.2 46.7 47.6 48.5 49.4 50.3 51.2 52. 4. n. 47.2 45.0 45.3 46.2 47.2 48.2 49.2 50.2 51.0 55.							6	4	*	M	3	2	4.	4	4	2	'n
0. 0. 0. 0. 52.5 49.8 49.5 49.8 50.4 51.1 51.8 52.0 52.0 52.0 0.0 0. 0. 56.9 49.8 49.5 49.8 50.4 51.1 51.8 52.0 52.0 0.0 0. 0. 49.8 47.5 48.1 48.9 49.7 50.8 51.5 52.0 52.0 0.0 0. 49.8 47.5 47.5 48.1 48.9 49.7 50.5 51.3 52.0 0.0 0.0 0.0 49.8 47.5 47.5 48.1 50.3 50.0 50.8 51.5 52.0 0.0 0.0 0.0 49.8 47.5 46.7 47.6 48.5 49.4 50.3 51.2 52.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0						9	4	2	~	3	5	M	M	54.2	54.7	5.	55.7
0. 0. 0. 52.5 49.8 49.5 49.8 50.4 51.1 51.8 52.0 52.0 52.0 52.0 52.0 52.0 52.0 52.0	_					5.	5	-	+	-	?	~	~	4	4	5.	iç.
0 0. 0. 52.5 49.8 49.5 49.8 50.4 51.1 51.8 52.5 10.0 50.8 51.5 52.5 5.0 49.3 48.7 49.3 50.0 50.8 51.5 52.5 52.0 50.0 50.3 51.5 52.3 52.3 45.8 47.5 47.5 48.1 48.9 49.7 50.5 51.3 52.4 50.5 51.2 52.5 52.5 52.5 52.5 52.5 52.5 52					0	+	0	0	0	÷	5	2		, M	•		5
1 0. n. 56.9 49.3 48.4 48.7 49.3 50.0 50.8 51.5 52. 2 0. 0. 49.8 47.5 47.5 48.1 48.9 49.7 50.5 51.3 52. 3 0. 55.3 45.8 46.2 46.7 47.6 48.5 49.4 50.3 51.2 52. 4 n. 47.2 45.0 45.3 46.2 47.2 48.2 49.2 50.2 51.0 55. 5 58.6 44.1 43.8 44.6 45.7 46.9 48.0 49.0 50.0 50.9 51.					5	6	0	0	0	÷		č	8	13	*	-	5
2 0. 0. 49.8 47.5 47.5 48.1 48.9 49.7 50.5 51.3 52.3 6.8 46.2 46.7 47.6 48.5 49.4 50.3 51.2 52.4 7.2 45.0 45.3 46.2 47.2 48.2 49.2 50.2 51.0 55.0 58.6 44.6 45.7 46.9 48.0 49.0 50.0 50.9 51.0 55.0 50.7 47.9 48.0 49.0 50.0 50.9 51.0 50.9 51.0 50.0 50.0 50.0 50.0 50.0 50.0 50.0				ç	6	8	60	0.	ċ	0	-1	Ĉ	8	3	4	4	ů.
3 0. 25.3 46.8 46.2 46.7 47.6 48.5 49.4 50.3 51.2 52. 4 0. 47.2 45.0 45.3 46.2 47.2 48.2 49.2 50.2 51.0 55. 5 58.6 44.1 43.8 44.6 45.7 46.9 48.0 49.0 50.0 50.9 51.				6	7	7	80	8	6	0	1.	~	3	5	4	4	ů,
5 56.6 44.1 43.8 44.6 45.7 46.9 48.0 49.0 50.0 50.9 51.0 51.0 51.0 51.0 51.0 51.0 51.0 51.0			'n	5	÷	9	7	00	6	•	+	~	52.7	53.4	54.0	54.6	55.3
5 58.6 44.1 43.8 44.6 45.7 46.9 48.0 49.0 50.0 50.9 51.			7.	5.	5.	6	7.	œ	6	•	+	•	ò	٠ س	4	4	5
2			4	*	4	'n	ý	00	ô	0	ċ	•	Ň	M	3	4	5
. IC 0.00 4.44 4.04 0.74 0.04 4.04 1.44 4.74 7.74 1.04		3.	ς.	2	4	5	9	7	90	6	0	•	52.5	53.2	53.8	54.5	55.1

5-HARNESS

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.54

₹ C :	\$ \square \chi \chi \chi \chi \chi \chi \chi \chi			1					BET						1	1		1
	X 1 2 2	1 =	9	•	1 6		1 . 0	1.1	1.2		•	1.5	1.6	1.7	1.89	4	N I	
ক'ক 	. W 4	0	-											0.92	23.3	22.4	26.	00
~ ·	rv 4						0	0	0 N	C +		m c	÷ c	÷ 6	↔ €	÷ c	∺ ∈	-11
					 		24.9	20.7	20.0	19.8	19.8	19.0	0.0 0.0	20.0	20.5	20.3	200	~ 4 1
4m 4m				19.5			0,00	6 6	o, œ	0 00	· ·	00	0.0	00		0 0		9 N
<i>∾</i> (O (, u	é u	· ·	2 . 4	7.		00 00	00 00	co oc	60	00	00	19°8		00	8 -
· ~		, 4	. 4		• •	. 6			000	600	600	. 6	6	0	6	-		1
W W		13.5	14.5	15.3 15:1	16.0	16.5	17.1	17.6			• •	19.0	19.2	19.5 19.5		0.0		ਜ ਜ
C		٠,	4	5	Š	4	7	7	7.	80	80	a c	•	0	0	0	0	.
~ ~		~	4 4	'n 'n	n n	÷ •				œ œ	 	œ æ	6 6	0.0	00	0 0		-
. ~ ~		12.9	14.6	15.0	15.7	16.4	16.9	17.4	17.9	18.3	18.6 18.6	18.9	19.2	19.4	19.7	19.9	200	l ed ed
		~	4	4	ň		9	7	7.	60	8	•	0	0	6	6	0	+4
M) P		· 0	4 .	4 4	. u	· ·	6	~ ~	7.	ac a	œ œ	ec a	· 0	60	60	0 0	0	
0 KC KC	n w 4	12.0	1410.410.0	4 4 6 9 9 9	15.7	H 46 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	16.0	17.4	17.9	18.2	18.6	133.9	19.2	19.4	19.7	19.9	000	
m m m		0.00 0.00	14.0 14.0 14.0	14.9 14.9	15.7 15.7 15.7	16.3 16.3	16.9 16.9 16.9	17.4 17.4 17.4	17.8 17.8 17.8	11 13 8 13 13 13 13 13 13 13 13 13 13 13 13 13	18.6 18.6 19.6	18.9 18.9	19.2 19.2	19.4	19.7 19.7 19.7	19.9 19.9 19.9	000	+1 +1 +4



YARN BULK DENSITY = 0.55

A & B & C & C & C & C & C & C & C & C & C								H							1		
FACTUR (K1)	0.5	0.6	0.7	0.8	0	1.0	1.1	1.2	1.3	1.4	-	1.6	-	. 49	+ 1	5	
13					. 0	. 0		0.0		000			0 5	0	0 0	31.	₩. 4
<u>.</u>											•		•	•		1	
15									0	0	4	2	+	+	+	+	× /
16							0	0	· ·		+1 1			o		> 0	
17					0 0	دې ر	• (0 0	o	·	E (- o	= c	> c	- c	> c	
1 F			21.6	18.6	, . . 30	18.3	14.5	18.7	19.0	19.2	10.0	19.7	19.9	20.1	20.3	20.	•
		,	r	,	•	•	0	Q	0	o	c	o	a	c	•	Ċ	_
2 7	⊃ ແ	. u			. ,	17.0	10.6	10 m	18.7	10.61	10.0	, so	19.9	0.0	20.2	200	r M
* 00	, 4		. r							. 60			6	•		0	-
1 10	1			9	•	~	7	60	60	80	0	6	6	6		9	-
200	13.4	14.5	15.3	16.0	Ś	7	7.	•	œ	8	0	•	0	•	0	0	20
25	•	-	2	6	16.6	7	7	60	60	00	0	•	0	0	•	0	
56	3		15.2	15.9	•	17.1	17.6	18.1	18.4	18.8	19.1	19.4	19.6	19.9	20.1	20.	m
27	ς.	4	5	'n	9	7	7.	80	8	ĝ	6	0	6	0	0	6	-
98	د	4	r.	5	9	7	7.	ф Ф	•	8	0	0	0	•		0	_
20		4	ις.	5	•	7	7	8	œ	œ	•	0	6	6	0	0	_
0.5	54	•	5	5	•	7		80	Œ	80	6	6	0	0.	ġ.	0	_
## PC	·,		5	15.8	9	17.1	17.6	18.0	18.4	18.8	19.1	19.4	19.6	19.8	20.1	20	M
12	3	4	5	5	è.	7	7.	œ	œ	œ	•	6	6	0	0	0	_
£ 5.		4	5.	S.	9	7	7	8	8	œ	6	6	6	•	0		~
3.4		4	15.0	in	•		7	œ	œ	œ	•	6	•	•	•	°	~
35	~	4	ī,	5	9	7	7.	80	œ	80	0	6	0	6		0	•
(N) (O)	13.0	14.1	15.0	15.8	16.5	17.1	17.6	18.0	18.4	18.8	19.1	19.4	19.6	19.8	20.1	20.	M
37	*	4	r.	5.	9	7.	7.	8	8	00	0	0	6	•	0	0	*



MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.56

0 U								9₽		1			(((•
A X		9.0	0.7	0.8	0	1 2-1		. +	P)	+	1.5	1.6	1.7	-	. • (2 :
T T T 10 4 1		0.0		0.0	00.		000	0.0	00				20	25.4	23.6	0.22.9
			00000			2000 2000 3000			2000 2000 2000 2000 2000 2000 2000 200	0.000	2445 7445	23.02.02.04.04.04.04.04.04.04.04.04.04.04.04.04.	22.02 20.5 20.5 20.5	22 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	711000	21.6 21.1 20.9 20.7
4 00000 7 01004				20000	66.77	8777	80 80 80 K K		0,00,00,00	60000	00000	00000	00000	60000	00000	00000
2222 2222 2322 2322	4 5 5 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7	4 4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	16.1 16.1 16.0 16.0	16.8 16.7 16.7 16.7		17.8 17.8 17.8 17.8	44444 8888 80000	118.6 118.6 118.6	119 118 118 19 19 19	9 9 9 9 9 9 9 9 9 9	6 0 0 0 0 6 0 0 0 0 6 0 0 0 0	90 80 80 80	20.0 20.0 20.0 20.0	00000 00000 00000	00000 00000 00000 00000
	 55255 	4 4 4 4 4 4 W W W C C C	2000 2000 2000 2000	16.0 16.0 16.0	16.7 16.7 16.7 16.4	17.2 17.2 17.2 17.2	17.7 17.7 17.7 17.7	1 1 1 1 8 8 1 1 1 1 1 1 1 1 1 1 1 1 1 1	18.6 18.6 13.6 13.6	118 118 10 10 10 10 10	00000	1499.55 199.55 199.55	911111 9991 9999 9999	200000		00000 0000 4444
335	13.1 13.1 13.1	4 4 4 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	5.50	16.0 16.0	16.6 16.6	17.2 17.2 17.2	17.7 17.7 17.7	18.2	118 118 18 18 6	18.9 18.9	6 6 6 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	19.5 19.5 19.5	19.8 19.8	20.0	20.2	200.4



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.57

X X P Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z	l	!			 	1	1 1 1	861	!		i	1	1	1		1	•
Y	0.5	٠ ب	7.0	n. 8	6.0	1.0	4 . 1	1.2	1.3	4 1	1.5	1.6	1.7	+ !		• 1	ŧ
2 4 1	0.0		i					0.0			00	60		27.4	24.3	. W	
	63303			00.000.000.000.000.000.000.000.000	0 0 0 19 19	2000 1900 1900	20.02 10.02 10.00	44 20 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	22.7 20.7 20.0 19.7	90000	447 447 450 450 450 450 450 450 450 450 450 450	00000 0000 0000 0000	200 200 200 200 200 200 200 200	222.422.22.23.23.23.23.23.23.23.23.23.23.23.2	0.4.0.0 0.4.0.0	
00000 01004	0 1 1 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	21 12 14 15 15 15 15 16 16 16 16 16 16 16 16 16 16 16 16 16	18 16 17 15 15 15 16 16	2 2 2 3 3 4 4 7 7 8 4 7 7 8 4 7 8 7 8 7 8 8 7 8 7	18.0 17.5 17.3 17.1	18.3 17.9 17.7 17.6	18.18.18.18.18.18.18.18.18.18.18.18.18.1	91111 9181 9188 9197	19.5 19.0 18.9 18.9	0000 0000 0000 0000	44444 44644 74644	0.0044	200.00	4 w w w c	92229 90999 90000	200.7 200.7 200.7	
		4444	200444 200444	146.23 146.23 146.23	11111 1000 1000 1000 1000 1000	7 7 7 7 7 7 7 7 7 7	18.0 17.9 17.9	4 4 4 4 4 4 4 4 4 4	21 11 11 11 11 12 12 12 12 12 12 12 12 1	 6666 11111	##### 00000 04444	19.7 19.7 19.7 19.7	000000000000000000000000000000000000000	200.00	44444	2000 2000 2000 2000 2000	
	8 C C C C C C C C C C C C C C C C C C C	4 4 4 4 4 4 4 4 4 4 	2000 2000 2000 2000 2000		0 0 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0	7 7 7 7 7 7 7 7 7 7 7 7 7	17.9 17.9 17.9 17.9	4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	18.7 18.7 18.7 18.7	1100.1 100.1 100.1 100.1	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	19.7 19.7 19.7 19.7	220.00	20000	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	00000	
888 886 886 886 886 886 886 886 886 886	13.7	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	15.3 15.3 15.3	9 4 4 4	16.8 16.8 16.8	17.4 17.4 17.4	17.9 17.9 17.9	118 138 333	18.7 18.7 18.7	199.1 199.1	19.4 19.4	19.7 19.7 19.7	20.0	2000	000	20.6 20.6 20.6	

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.58

A P P P P P P P P P P P P P P P P P P P								BET							11		
A X	0.5	. 6	0.7	i	0	1.0	1.1	1.2	1.3	4	•	9	1.7	60	+	0	
1 10 4				0	0.0				00	00				37.8	0.	23.9	
										2	•	ď	P-	2	~		
									Ö	23.5	22.3	21.8	21.7	21.6	21.6	21.6	
						0	~	2	44	-	c		+	+	ř	-	
				0	0					0	•	0	0	0	-	+	
						•	•	6	ò	· Cr	0	0	0	0	0	H	
			œ	œ	œ	•	60	0	•	•	6		0	0	(2)	0	
	6	7	17.0	17.3		60	18.5	18.9	_	6	•		20.3	20.5	20.7	50.9	_
	č.	5.	9	\$	7	7	8	80	•	0.	•	0	6	0	0	0	_
	4		ç	Č	7	7	8	80	6	6	6	0	0	0	0	0	
40	14.0	5.	10	•		17.7	•	60	6	9	0	•	0	0	0	0	
	8	4	5	•	7.	7.	80	80	6	6	O	0	0	0	0	0	
		14.7	15.6	16.4	17.0	~	18.1	18.6	18.9	19.3	19.6	19.9	20.5	20.4	20.6	20.8	
	۵,	4	ľ,	9	7	7	œ	8	60	0	0	6	0	O	0	0	_
	m)	4		\$	۲.	7	8	8	8	6	0	0	0	9	0	0	
		4		9	•		80	80	80	•	•	6	0	0		0	
	*	4	5	6	7.	7	00	00	œ	6	0	6	0	0	0	0	
	3	4	'n.	ċ	7	7	æ	80	8	•	0	6	0	c	c		
	13.4	14.5	15.5	16.3	16.9	17.5	18.1	18.5	18.9	. 6.3	19.6	19.9	20.1	20.4	20.6	20.8	
	3.	4	5	ç	9	7	œ	8	8	6	0	· 6	0	Ö		0	
	8	4	Š	ç	9	7	œ	80	, CO	6	0	0	c	0	0		
	3	4	r.	¢	9	7	œ	00	90	•	0	•	0	0	c	Ð.	
36	13.3	14.5	15.4	16.2	16.9	17.5	18.0	18.5	18.9	19.3	19.6	56.63	23.1	20.4	20.5	23.8	
	30)	4	S.	ċ	•	/	&	60	60	•	6	0	0	0	0	0	

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.59

	2			2222 2222 2122 2123 2123 2123 2123 213 21	21.0 21.0 21.0 21.0	21.0 21.0 21.0 21.0	21.0 21.0 21.0
	-	26.5	000000	00000 00000 00000	000000 00000 00000	00000 0000 0000 0000	20.08
(6 0		88888 8888 8888 8888 8888 8888 8888 8888	200.0 200.7 200.7 200.6	220 20 20 20 20 20 20 20 20 20 20 20 20	2000 2000 2000 2000 2000 2000	20.6
	+	00	24.1 22.0 21.2 20.9 20.7	20.05	20.3	200.3	20.3
	1.6		27.3 22.2 21.2 20.7	200.2 200.2 200.1	200.1 200.1 200.1	200.0	20.0
	.5		22.9 23.9 20.6	H H H B B B B B B B B B B B B B B B B B	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	19.8 19.8
(#		200 200 200 200 200 200 200 200 200 200	19.9 19.7 19.6 19.6	2000 2000 2000 2000 44	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	19.4 19.4
	. 10		200 200 190 900	9 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	666 666 666 666 666 666 666 666 666 66	66666 66666	19.1 19.1 19.1
8ET	1.2	0.0	23.4 20.6 49.7	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	18.7 18.7 18.7 18.7	18.7 18.7 18.7 18.7	18.7 18.7 18.7
	1.1	0.0	0. 0. 21.0	0.00 H H H H H H H H H H H H H H H H H H	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	44444 80 80 80 40 10 10 10 10 10 10 10 10 10 10 10 10 10 1	11 8 11 12 12 12 12 12 12 12 12 12 12 12 12
	1 0 1			8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	17.8 17.8 17.7 17.7	17.7 17.7 17.7 17.7	17.7 17.7 17.7
	0.0			4 11 4 00 00	アストア		17.1 17.1 17.1
	1 0		00.00.	18.6 17.6 17.1 16.9	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	4 4 4 4 4	64 4 4 4
	0			1144 144 144 144 144 144 144 144 144 14	117.08 117.7 117.7	11 11 11 11 11 11 11 11 11 11 11 11 11	15.6 15.6
	C	i	00000	1106.7	15.0 14.3 14.7	4 4 4 4 1 1 1 7 7 7 7 7 7 7 7 7 7 7 7 7	14.6 14.6 14.6
1	0	0 0	00000	0 1.65.1 1.67.7 1.64.1		######################################	2.5.1 2.5.1 4.4.
2 × 2 × 2 × 2 × 2 × 2 × 2 × 2 × 2 × 2 ×	XC	W 4		0 H () M 4			
	« -			200			

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.60

								8		!			Į.				
A Z	0.5	9	ſ.,7	. 0	6.0	1.0	1:1	1.2	 	1.4	2.5	1.6	1.7	1.8	1.9	2	0
 				! ! •	0				0 .	0	0			0	•	•))
	•								•	•	•	•	•	•	6 0		
									•	0	6	4	5	100	E)	2	
		٠	С	·	0	0	0.	0	•	26.4	23.5	22.7	22.3	25.2	22.1	22.	
						0	•	4	2	+	÷	;	-	+	•	Ħ	
					0				•	0	9	+	;	1	7	-1	
	0					0	6	0	0	0	0	0	0	-	+	- −	
		•	0	6	8	•	•	6	0	0	0	0		+	-	-	
		18.2	17.7	17.9	8	18.6	18.9		19.6	19.9	20.2	20.4		20.9	21.1	21.	
	•	•	•	7	7	8	8	6	6	0	0	0	0	0	-	+1	
~	4	5	9	7.	7	60	60	6	•	6	0	0	0	0	•	4	
		5	•	•	17.5	œ	•		6	•	•	0	0	0	-1		
25	4	'n	9	\$	7		00	60	6	6		0	0	0	o-f	*4	
	13.9	15.0	15.9	15.7	17.4	17.9	18.4	18.9	19.3	19.6	20.0	20.5	20.5	20.8	21.0	21.	
	~	4	ŗ.	9	7.	7.	œ	9	Ċ.	6	6	0	0	0	-	-4	
	3.	4	R)	\$	7	7.	æ	8	•	6	0	0	0		-	4	
	~	4	ů.	•	7.	7.	œ	œ	0	•	0	0	0	0	-	-1	
	8	4	5	·c	7		60	80	0	5	•	Ö	0	0	-	+-1	2
	13.6	14.8	15.7	16.5	17.2	17.8	18.4	18.8	19.2	19.6	19.9	20.5	20.5	20.7	21,0	21.	2
	3	4	5	9	7	۲.	æ	8	6	6	6	0	0	0	+	+1	~
	~>	7	5.	•	7.	7	8	80	6	0	6	•	6	0	+	4	2
4.	٠ ٣	4	5	·	7.	7.	œ.	œ	6	6	6	0	0	0	• • 1	4	(V
35	~	4	5	•	7		60	αċ	•	6	0	0		0	-	-4	~
36	13.6	14.7	15.7	16.5	17.2	17.8	18.4	13.8	19.2	19.6	19.9	20.2	20.5	20.7	21.0	21.	~
	₩.	4	'n.	÷	7	7	6	8	6	•	•	0	0	0	-	-4	~



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.61

X < RP = 1	1	 		1		1	(1	BET		1	0 î	•		5	1	1 1 1	· ·
A F	0.7	9.0	n.7	8.0	0.0	1.0	1.1	1.2	1	4		9	1.7	1.8	4	2.0	6
4 4 5 4 	ı	1				00		1			1	0.0	0.0		00	0.	
								•		0	0	Θ.	9	4	b)	m (
16	• c	c c	c		0 =	- c		0.7.5	0 M	30.7	24.0	23.1	22.7	22.5	22.4	22.4	
							~	• •		, ,	• •		· ·	• •			
	· c					0	•	0.	0	0	ċ	0	+	• •-i	+		
20		C	(M)	6	6	6	0	6	0	0.	0	0	0		.	1	
		•	αc	æ	8	00	6	•	6	0	C.,	0	0	•	+	-	
	ċ	ċ	7	r~	œ	œ	Œ	6	6	0	ċ	0	0	•	-	;	
		15.9	16.6	17.2	17.8	18.3	18.8	19.5	19.6	19.9	20.5	20.5	20.7	21.0	21.2	21.4	
		r.	ċ	7	7	œ	a C	6	6	0	6	0		H	÷	÷	
	4	r.	è	•	7.	Œ	œ	6	6	6	c	0	0	0			
	14.0	15.1	16.1	16.8	17.5	18.1	18.6	19.0	19.4	19.8	20.1	20.4	20.7	20.9	21.2	21.4	
	8	٠.	9	9	7.	8	œ	6	•	6	0	0	0	6	•	+	
	ن. •	ĸ.	ŝ	9	7	8	œ	·	6	6	6	0	0	ີ. ລ	#4	÷	
56	•	4	r.	•	7	œ	œ	6	ó	6	c,	0		· •	-	- i	
3.0	3.	4	ī.	9	7	œ	œ.	6	6	6	0	0	0	0	• •		
	8	9	S.	9	7.	00	8	6	9	6	0	0	0	0	•	-	
32	13.7	14.9	15.9	16.7	17.4	00	18.5	19.0	19.4	19.8	20.1	20.4	20.7	50.8	21.1		
	~ ⊃	4	ĸ.	ċ	7	œ	æ	6	6	6	0	0	0	0	• •-1	÷	
-	3.	4	5.	•	7.	•	α	6	6	•		0	0	0	• •⁴		
	~;	4	r.	¢	7	20	ac.	•	6	6	ċ	0	0	0	•	+	
36	1.5.7	14.9	15.8	16.7	17.4	18.0	18.5	19.0	19.4	19.8	20.1	20.4	20.7	50.0	21.1	21.3	
	100	4	3	•	7	œ	ac.	6	0	5	c.	0	0	0	÷	.	

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.62

1	N I	27.5	23.6 22.6 22.2 21.9 21.9	21.7 21.6 21.6 21.6 21.6	221.5 221.5 21.5 21.5 3	200 4444 500 500 500 500 500	21.5
	• । ज	00	24.0 22.7 22.1 21.8	22222 22222 22444	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	22222 2222 2222 2222 2222 2222 2222 2222	21.3
	1.8	00	25.0 22.8 22.0 21.7	211.2	221.1	221.1 221.1 221.1 21.1	21.1 21.1 21.1
	1.	0.0	27.9 23.1 22.0 21.5	21.1 21.0 21.0 20.9	200.00	2000	20.8 20.8 20.8
1	1.5)	233.7 222.1 21.14	20.9 20.8 20.7 20.7 20.7	20000	20.6 20.6 20.6 20.6	20.6 20.5 20.5
į	r.	00	00000 00000 00000	00000 00000 7.000	22020 2000 2000 2000 3000 3000	2000 2000 2000 2000 2000 2000 2000 200	200
	1,4	. 0	0. 22.7 21.3	200000000000000000000000000000000000000	20.0 20.0 20.0 19.9	19.9 19.9 19.9 19.9	19.9 19.9
	1.3		0 0 4 0 0 0 4 0 0 4 0	20.2 20.0 19.8 19.7	1100.6 1100.6 100.6	199.6	19.5 19.5 19.5
₩ (2	000	20.5	20 140 140 140 140	19.2 19.2 19.2	# # # # # 0 0 0 0 0 # # # # #	19.1 19.1 19.1
	1.1	0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8.00 to 10.00 to 10.0	118.8 118.7 12.7	18.7 18.7 18.7 18.7	18.7 18.7 18.7
	1.0)	0.00.00.00.00.00.00.00.00.00.00.00.00.0	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	18 18 18 18 18 18	1.89.1.1.89.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	18.1 18.1 18.1
	0.0		200.0	19.7 18.7 17.8 17.8	17.7 17.7 17.6 17.6	27 27 27 27 27 27 27	17.5 17.5 17.5
	0			20.3 18.5 17.8 17.2	17.1 17.0 16.0 16.9	146.8 146.8 146.8 146.8	16.0 16.0 16.0
	0			18.6 17.3 16.8	16.3 16.1 16.1 16.0	4444 444 644 644 644 644 644 644 644 64	16.0 16.0 16.0
				20.5 17.0 16.1	2.5.5.5.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2	15.0 15.0 15.0 15.0	15.0 15.0 15.0
1	0			0. 17.7 15.5	4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	44444 64444	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
\$ 2 C	★ ~~	E 4		0.000 0.000 1.000 4			335



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YAHN BILK DENSITY = 0.63

7 PT		1 C	1 1	1 1 1		1	1	1				1	1			
1 P P P P P P P P P P P P P P P P P P P		-	J. U	0.8	0.0	1.0	1.1	÷	1.3	4	1.5	1.6	. 7	# 1 # 1	+ !	2.
			. 6		0 .	0.	-	0.	0 .				0			0
			C					•		•		•		0	•	0
						0					0	0	~	5	4	4
		c	· c	0		0	C		<u>.</u>	0	26.7		23.5	23.1	23.0	22.
						0	Ċ	0	5.	3.	~	?	~	۶.	2	2
					C	ů.	4	•	-		1.	~	+ 4	-	ċ	2
	.0	c			25.2	21.6	21.0		•	· ·	-	;	-	+	-4	C
		•			Ċ	•	C	c	6	0		÷	÷	+	**	
	\supset	8	0	ά	6	0.	0	o.	0	0	C)	+	-	+	+	-1
	c	7	1	a.	80	æ	0	19.7	C	20.3	20.6	20.9	21.1	21.4	21.6	21.
	z.	ċ	7	7.		80	0	0	6	0	c.	0	-	1.	+	-
	15.0		•	17.4	18.0	18.5		o.	19.8	0	ċ	о С	•	÷	-	-
	4	r.	•	7	7	•	19.7	6	6	0	0	0		-	21.5	-
	4	15.4	16.4	17.1	•	an)	α.	10.4	•	20.1	24.5	0	+	21.3	-1	
	4	'n	ζ.	7	7	œ	ď	6	6	0	Ċ.	0				4
	4	'n.	ď	7.	7.	8	.r.	6	0	S	ċ	0	•	-	;	4
	14.0	•	•	7.	17.7	_	6 0	6	19.7	0	C.	20.7	•	+	+	
3.0	4	R.	٠,	7.	7	•	œ	6	0	0	<u> </u>	0	-	+	-	
	4	Š		7.	1	œ	œ	0	6	0	-	0		+	-	-
	~;	ι,	ν.	7	7	80	œ	6	•	د	C	0	+	1	-	┥
			16.1	16.9		æ	18.8	19.3	6	20.1	20.4	0	21.0	21.2	21.5	21.
			ċ	ċ	~		œ	6	•	0	<u> </u>	0	-		1.	
	·*	ر. •	ζ.	ć	7	•	α.	0	0	0		0	·	•	21.5	
	15.4	.5.1	16.1	16.9	17.7	18.3	18.8	19.3	19.7	20.1	20.4	20.7	21.0	21.2	•	21.
	3.	ι.	ý	·c	7	œ	œ	0	0	0	c	0	+	7	•	-4

MAXIMUM FILLING COVER FACTORS [K2] IN THRMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.64

MARP COVER FACTOR	1	1	1	:		•	!	BETA	1 1 1	•	-	1	•	,	:	
(X)	6.9	9.0	-	C !	0.0	1.0	4 - 1	1.2	1:	1.4	₹ 1 1	1.6	1.7	= :	6	2.
13					0			0.0			·		0.	6		0 0
									•			•	•	•		•
									•		0	0	0	9		+
1,6									0	0	6	5	3	3		3
17							0	ċ	9	3	8	2	۷.	2	2	ŝ
18	0		0.	0		0	26.4	23.0	25.2	21.9	21.9	21.9	22.0	22.1		22.3
46	0	U			•	22.3	•	÷	ij	+	• •	H	• •	·	~	ò
20			0	~	0	0	0	· 5	6	0	-	+4	-	÷		~
21	0	C	6	6	ò	6	•	0		0	0	-	+	+	-4	å
22	+		7	8	œ	6	•	6	0	0	C		1	+	-	·
23	9	16.6	17.2		8	18.9	19.3	16.7	20.1	20.4	20.7	21.0	21.3	21.5	21.7	21.9
40	30	ċ	•		•	œ	6	6	0	0	6				+	H
25	14.7	15.8	9		00	9.8	0	19.6	0	0	0		-	21.5	÷	
56	4	5	16.5	7.	8	8	•	0	19.0	20.3	20.6			-	21.7	
27	4	5	ć	7	7.	œ	φ.	6	·	°	0	0	1.	+	40 4-4	.
9.6	4	5	·	7	7	œ	0	6	0	0	c	0	;	• •4	-	-
0	4	5.	•	1	•	œ	•	0	•	0	6	0	• †	+		•
30	4	r.	9	7	7	•	6	6	6		Ċ	0	-	+-4	-	•
31	4.	5	é	7	7	œ	6	6	6	0	Ö	0.	+	+	-	-
32	4	15.3	16.3	17.1	•	16.4	19.0	19.4	19.9	20.5	20.6	50.9	21.2	21.4	21,6	21.9
33	4.	ı.	•	7	7	œ	6	6	0	0	.	0	H	-	+	+
4	14.0	5	•	7		00	6	0	6	0	c	0		+	-	
35	4	r.	•	7	7	90	6	3	•	0	0	0	•	+	-	+
36	14.0	15.2	16.5	17.1	17.A	18.4	10.0	19.4	19.9	20.5	50.6	50.9	21.2	21.4	21.6	51.9
	4	u'\	\$	7.	7	œ	•	5	6	0	0	0	H	÷		-4

MAXIMIM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

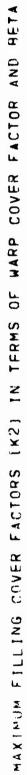
YARN HILK DENSITY = 0.65

								BET							į	,
<u>ب</u> په	5.5	9	n. 7	00	6.0	1.0	1.1	1.2		1.4	1.5	1.0	1.7	1.8	6 . 1	
	: •	1 .			i I •	\$ \$ •	l l "	0.0	0	0.0		0.0) •		0	0
14								•			•		•	•	•	•
*** '\mathcal{L}'												0	C	60	5	4
16									•	U	0	S.	4	m	3	3
17							0	ċ	0	4		3	c,	<u>ن</u>	2	ċ
18			c	0.		0.	33.7	23.7	25.6	22.3	22.2	22.2	22.2	22.3	22.4	22.5
40	<u>.</u>						•	- +-1	• •	•	•	+	•	2	·	2
20			c	₩.	-	ů.	0	•	0	+	•	~4	-	+4	2	2
21		-	<u>-</u>	0	6	0	0	ċ	0	0	*	,	+		5	5
22		œ.	œ	8	8		•		•	20.7	21.0	← f	•	21.7	4	22.1
23	9	é	7	ď	8	6	c,	0	0	0	<u> </u>	+-1	+	+	-	ŝ
40	15.5	16.3	17.0	•	18.3	OC.	0	6	0	0	6	21.1	21.4	÷		5
25		5	•	1	œ	60	0	•		0		•	-	-4	•	3
56	4	5	÷	7.	60	8	•	6	ċ	0	0	;	1.	÷	*1	2
27	4	r.	S	•	æ	œ.	19.2	19.7	20.1	20.4	20.8	-	21.4	21.6	-1	•
26	4	u'	·	7.	æ	œ.	·	6	ċ	0	c			+	7	<u>٠</u>
20	4		16.5	7	œ	18.6	0	•	0	0	c	•	• •	+	-1	·
30	4	ır.	\$	7	ď	•	5	6		0	c	4~4	•		-	2
3.1	73	r .	ç	7	8	8	0	6	0		ċ	•	•	-	-	?
32	4,	5.	· C	7	7	æ.	•	•	0	0	c	7	•	+4	-4	ė
33	V		16.4	17.2	7.	Œ	19.1	10.6	20.0	20.4	20.7	21.0	21.3	21.6	21.8	22.0
4 4	3	ı.	·	7		œ	•	0	Ċ	Ċ	c:	•			÷	2
35	4				•		3	•	0	0	c	+-4		÷	• •	CV
36						œ	19.1	19.6	20.0	20.4	20.7	21.0	21.3	21.6	21.8	22.0
37	4.	ď.	ċ	7.	7.	æ	0	•	0	0	ċ	- ,	•	÷	•	·

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.66

								8E T				(1		1	
X	9.5	9 - 0	0.7	6.0	•	1.0	; ,	1.2	1.1	4	1.5	1.6	1.7	8 :		2,0	
13				i) i •		0.	•	. 0	
										•				•	•	•	
												0.	0	ب	9	5	
								•		0	0	7.	5.	4	3	3	
								0	0	ď,	4	3	3	3	M	(ما •	
			٠.		0.	0	0		23.1	22.6	22.4	22.4	25.5	22.5	25.6	22.8	
	· n	c c	0		0.	24.4				H	*	8	5	2	~	ò	
			0	ď	-	÷	0	0	-	•	•	1.	•	8	2	2	
		c.	+	c	6	0	0	0	0	-	÷	₩	+	2	2	5	
		0	α.	œ	6	•	6	ċ	0	0	4	٠ ا	+	-	~	2	
	7.	1	~	18.2	-	•	6		20.4		•		21.6	4-4		22.3	
	15.7	•	7	7		-	19.5	0	•	0	21.0		•	21.8	8	3	
25	5.	\$	•	•	80	60	0	0	0		49-4	-1	+4	*1	2		
	4	15.9	9	1	18.3	18.9		19.8	20.3	•	-		21.5	21.8	22.0	ò	
	4	Š	•	7	8	80	•	•	0	0	c	+	7	-	å	2	
	4	5	\$	7	œ	80	6	6	0	0	0		•	-	'n	ċ	
	14.4	•	ç	1	80	œ	6	6	0	0	•	44	-	+	5	8	
	4	5	· c	7	80	80	0	0	0	0		-	•	-	2	8	
	4	15.5	16.5	17.4	18.1	18.7	19.3	19.8	20.5	20.6	20.9	21.2	21.5	21.7	22.0		
	4	r.	ć	7.	8	8	0	œ.	0	0	0	ij	•	,	2	⊹	
	4	r.	×c	7	œ	œ	6	•	•	0	ċ	;		+	2	ċ	
4 6	14.7	•	· ·	7.	œ	x 0	6	c.	0	0	ċ	+	-	+	2	·	
	4	Ţ.	c	7	90	•	0	6	ô	0	0	• •: 1	+		2		
90	14.2	15.5	16.5	17.3	18.1	18.7	19.3	19.7	20.2	20.5	20.9	21.2	21.5	21.7	22.0	5	
	4	ir.	5	7.	ф •	œ	6	6	ċ	0	ċ	+	+	+	5	·	



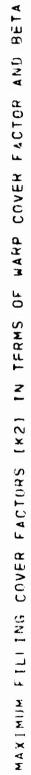
YARN BULK DENSITY = 0.67

							1	BET	1	1		1		1	1	
4 ~ ⊃ X	3.	9.0	0.7	6.	0	1.0	1.1	1.2	£ . 1	1.4) 	1.6	1.7	1.8	1,9	2.0
13.					0.			.0	. 0	. 0	•	•		0	0	0.
								0.				•			6	•
												0	0	0	7	5
								•		0	6	30	5.	+	4	4
								0	0	•	4	2	3	3	3	3
		<u>.</u>	·	c.	0	0	0	25.8	23.6	23.0	22.7	22.7	22.7	25.8	22.9	23.0
	0.		0.					ċ	ò	2	8	2	2	٥.	Š	ò
				•	2	-	•			+			8	2	~	2
		C	, M	0	0	0		20.7	21.0	21.2	-	21.7	21.9	22.2	22.4	
	0		6	6	0	6	0	0	ċ	7	-	-	-	5	5	5
~		./	7	œ	8	0	6	0	0	0	1	-	÷	2	2	ċ
	16.0	16.7	17.4	18.1	18.7	19.5		0	0	0	21.2	-	.	•	Č	5
25	ις.	9	L-	7	60	0,	•	0	c	0	•	+	+	22.0	2	CV
		S	17.0	17.7	18.4	•	19.5	20.0	20.4	20.8	21.1	21.4	21.7	+1	25.5	
	4	r.	\$	7	œ	•	6	0	0	0	-	-	÷	+	2	ċ
	4.	r.	ζ.	7	œ	Œ.	0	0	0	0	•	7	+	4	٠ د	5
		15.7	S	7.	.	18.9	o.	6	0	0		+	• •	+	~	5
	4	r.	ç	7	6	œ	0	6	0	0	• •		+	·-	2	0
	4.4.4	15.6	15.7	17.5	18.2	18.9	19.4	19.9	20.3	20.7	21.1	21.4	21.7	21.9	22,1	22.4
	4	R.	9	7	8	œ	6	6	ċ	0		+		·	S	ċ
	4	5	· c	7	80	x.	6	•		0	7	-	;	+	ċ	?
3.4	4	٠.	·	7	•	œ.	•	6	0	0	**	+	+	•	5	5
	4	ζ.	v.	7	œ	30	6	6	0	0		-	+	-	Š	0
_	14.3	15.6	16.6	17.5	18.2	18.8	10.4	19.9	20.3	20.7	21.1	21.4	21.6	21.9	22.1	22.4
	•	r.	v.	7	®	80	0	6		0	+	+	+	-4	5	5

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.68

a u +			I					BET	!	1		i			•	9 9 2
(K1)	0.5	9.6	0.7	0.3	0.9	l +-1 l	. 4	1.2	+	1.4		1.6	1.7	+	4	2
1	1	i			0 0	00	000				90	00		00	00	
												0	0	0	80	•
. 40	. 0	 				. 0			•	0		32.9	26.4	25.5	24.6	24.3
								0	0	80	5	4	3	3	3	3
			0			ú.	ċ					2	2	3	•	3
						32.3		ò	2	2	~	2	2	6	C1	~
				•	м	+-1	÷	•	+	+	**	C)	8	å	2	Ň
		C	œ.	***	0	0	0	Ċ	+	+	+	+	5	ò	2	5
		٠	6	6	6	6,	0	0	0	+	-1	+	ς.	2	2	5
	8	1	α	18.6	19.1	6	0	0	0	-	•	-1		25.2	22.4	
	16.3	16.9	•	œ	80	19.4	19.9		•	+		+		3	ô	5
25	'n.	÷	7	œ	60	0	6		Ö	21.0	21.3	21.6	4-1		22.4	~
	15.1	16.2	17.1	17.9	18.6	•	6	0	0	0	+	··4	-1	2	2	•
	4	ċ	7.	7	a 0	•	•	0	0	0	=	+	+	c,	ċ	ċ
	4	'n	ċ	7.	8	6	٠.	0	ċ	0	•	H	+	ŝ	2	Ň
	•	ı,	\$	7.	œ	·	19.6	·	•	0	•	+	21.8	'n	~	2
	4	ır.	8	7.	œ	•	6	0	0	0	•	+-	+4	N	N	2
	14.5	15.8	16.8	17.6	18.4	•	6	20.1	20.5	50.9	21.2	21.5	21.8	22.1	22.3	25.5
	4	ĸ.	÷	7.	8	•	0	0	-	0	-1	;	+	2	%	5
	7	r.	·C	7.	œ.	•	9	j	C	0	.	Ļ		'n	5	5
	1	٦.	ć	7.	œ	0	10.5	•	0	0	•	7	•	2	<u>٠</u>	Cu
	4	7.	•	7	œ	•	0	0	0	0	•	·	• • •	~	~	>
0	14.4	15.7	14.1	17.6	18.3	19.0	19.5	0.00	20.5	50.9	21.2	21.5	<. 1. S	22,1	22.3	22.5
	·•	ď	·	7.	œ	ъ.	•	-	0	0	<u>.</u>	ਜ	<u>.</u>	2	c,	· >



YARN BULK DENSITY = 0.69

X > 1								ET	į			4 1 2	1		1	1	
¥ Z	0 . 5		0.7	0.0	0.0	1 0	1.1	. 2	PO 	4 .	1.5	1.6	1.7	1.8	1.9	2.0	
1	•		•	ı	•			0.0	000		00	• •					
					00000				000000000000000000000000000000000000000		5 E V V C	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0000 0000 0000	# 10 00 00 kg	23.50 23.50 23.50 24.50	
53 00000 5 01004							. 40000			· · · · · · · · · · · · · · · · · · ·					00000	nnnnn c	
00000	v.v. 4 4		17.5 17.3 17.1 17.0	18.1 18.1 17.9			00000	00000 0000 40000	20.7 20.7 20.7 20.7	21.1 21.1 21.1 21.1	0.0000 1111111 10.4444	21.8 21.7 21.7 21.7	22222	00000 00000 00000	22222 22225 22225	22.7 7.22.7 7.22.7 7.22.7	
		0.00 a a	4444 6444 6444 6444	17.8 17.8 17.8 17.7	4 4 4 4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6	199.1	19.7 19.7 19.7 19.7	22000	200.6	21.0 21.0 21.0 21.0	2222 2222 2444 4444	21.7 21.7 21.7 21.7	225.0 225.0 225.0	2222	00000 00000 00000	22.7 22.7 22.7 22.7 22.7	
35 35 75	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	3. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.	3 3 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	17.7	118 188 188 187	19.1 19.1 19.1	19.7 19.7 19.7	20.2	20.5 20.6 20.6	21.0 21.0 21.0	21.2	21.7 21.7 21.7	22.0 22.0	22.2	22.5 22.5 22.5	22.7 22.7 22.7	



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.70

								9E1								
A T	0.5	9 - 6	0.7	0.8	0.0	1.0	+4 • +4	1.2	1.3	1	1.5	1.6	1.7	• • • • • • • • • • • • • • • • • • •	1,9	2.0
13		1 ·		£	0.0	: : 0 :			•	0	0 .		0 .		. 0	. 0
				÷			0		•		•		0	•		•
	0								•			•	0	0	0	ф Ф
	0						C		•		e.	0	on.	•	Š	Š
	0						0		ċ	0	9	J.	4	4	•	4
	0		9.			ċ	•	0.	25.9	24.3	23.7	23	23.4	23.5	23.5	23.6
	0	· C			ن.		S	•	٠ د	c N	ς.	ò	0	·	·	·
				-	7	~	~	2	N	\sim	~	~	8	•	~ 5	3
				N	-	· •	•	+	+		2	2	2	22.7	°	
	0		0	0	0	0	0	-	+	+	.	2	2	ò	Ŕ	ю М
	2	α	α	0	6		c :	0	-	-	•	~	2	2	Ċ	M
	17.1	17.4	18.0	18.6	19.2	19.7	•	20.6	21.0	÷	21.7	2.	22.2	2	22.7	٠ د
25	9	¢	7.	œ	6	•	ċ	0	0	+-1	•		8	~	•	8
		×	17.4	18.2	18.9	6	20.0	20.5	20.9	21.3			22.2	22.4	3	55.9
	5	9	7	œ	8	0	0	0	•	+	• -	-	i	٥.	2	2
	5	6	7	œ	œ	6	6	0	•	+	•	-	2	ċ	2	S.
	-	•	7	œ	c o	10.3	0	0	0	÷	•	.	2	o.	2	2
	4	•	7.	7	60	0	•	0	0		÷	+	8	Š	2	5
	4	•		17.9		•	0	0	20.8	21.2	wi	4-mg		22.4	25.6	55.9
	4	ċ	7.	7	œ	6	•	ċ	0	+	.	- -	2	2	ė	c,
	4	ċ	7.	7	a ()	Ġ.	•	ċ	Ö	~ 4	-	+	?	'n	ŝ	2
	14.7	ľ,		7		19.3	•	20.3	0	H	21.5	21.8		2	°	~
	4	ď	7	7	90	0	0	0	0	+	•		<.v	~ .∨	~	2
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	14.	15.9	17.6	17.9	18.6	19.3	19.8	20.3	20.8	21.2	21.5	21.8	22.1	22.4	22.6	22.9
	4	ı,	,	۲-	. * .	0	0	0	<u>-</u>	+	•	+	$\dot{\sim}$	2	~	c,



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YAHN BULK DENSITY = 0.71

FIVE-HARNESS WEAVE FABRICS

3 2 1 t	1		1					₽EŢ	ı			•			1	
4 ~ ·		9.		£ .	6.0	1 0 .	1 1 1	1.2	. ·	4.	1.5	1.6	1.7	80	6 F	2.0
131		1 0 0			•	0								00	00	.0
											c c	0.0	0 7	0	50	o w
	. .					000	c c	000	0.27.1	0.4.8	28.1	25.7	24.9	24.5	24.4	24.3
								•	3	٠ <u>.</u>	M	·2	3	٣	·	5
				- r	0	M) +	~ .	٥.	· ×	0,0	00	80	00	m 0	M) M	M) M
		· ·	• ↔		. 0	9.	- C	 			: 2		. ~		. ה ה	, m
W 4	17.5	19.3	19.1	19.3	19.7	20.1	20.6	20.9	21.3		• •	22.2	22.5	22.7	22.9	23.1
	·		~	α.	6	•	·	0	+		-	8	~		5	M)
	1	· ·	r- r	œ o	٠ 0	•	c c	0	• +4 +		•	o o	ر. د	ni n		w w
	15.1	16.3	17.5	18.2	18.9	_	20.1	20.00	21.0	4 -4	• •	22.3	22.3	22.6	22.8	23.0
	ζ.	¢	7	œ	œ	φ.	ć	0	- -i	-1	•	ċ	2	٥.	°.	3
	4	v.	7	œ.	œ	0	0	Ċ	0	+	-	N	~	N.	2	M
	٠ ج	į,	7.	ac o	დ d	· ·	C (· ·	c	ं च्लं क	•	٠,	~ r	· ·	2	m ~
	4 4	1.4.	17.1	. w.	1 . W		20.00		20.9	21.3	21.7	22.0	22.3	22.6	22.8	• •
3.4	4	ċ	7.	α.	œ	0	ċ	0	ċ	+-1	•	$\dot{\circ}$	5	ò	2	3
	4	·	7.	σ.	α Ο	o-	<u> </u>	0	6		-	~	$\dot{\sim}$	ò	~	3
36	4.	16.0	17.1	18.0	18.7	19.4	20.0	20.5	50.9	21.3	21.7	22.0	22.3	22.6	22.8	23.0
	4	· ·	7	or.	oc.	•	C	<u>-</u>	ċ	+	-	ς.	2	۲.	·	3

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.72

		$\begin{array}{cccccccccccccccccccccccccccccccccccc$			41 00000 440000 00000 0	41 00000 W4400 00000 C	41 000 4 99999 99999 99999 99999 99999 99999 9999	+1 00000 NN+++ +++++	4		141 00040 00000 00000 0	141 60040 60000 00000 0	141 67488 88000 00000 0	-	ІМІ БИДДЫ ВВВВВ ВВВВВ В
2	16.3	17.3	18.2		900	20.1	20.6	21.1	21.5	21.8	22.2	22.5	22.7	23.0	23.2
n u	16.	7	œ œ	œ œ	٠, O	. c	٠ د د	<u>.</u> ; -			o'c	~ ·	n'n	M . W	W W
. 4		, ,	· œ	00	. 0				• •	4 +		, ,	, ,) P.	מיו כ
4	16.	7	00					•		1 +	5	0	'n	, P)	m
4 4	14.2	17.2	6 4		19.5	20.1	2000	21.1	21.5	21.8	72.1	22.4	22.7	23.0	
			i œ	0 00	. 0	· ·		: ;		 H H	· ~	· ~	in	, m	, w
4	16.	7.	80	8	6	0	0		-	-				, ~	~
4	16.	1	ť	(•	1	J	ů	•	•



MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND RETA

YARN RULK DENSITY = 0.73

1	0	£0 ↔ €0	-	V & 12 12 4	****	44000	mmmmm
1	2	800	4 W	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	00000 00000	00000 00000	88888
1	4.9	0 % 4	4 10	8 8 8 8 8 8 8 8 9 8 9 9 9 9 9 9 9 9 9 9	さきまちき	00000 88888 4444	223333 233333 233333
1	4.8	0.00		800 800 800 800 800 800 800 800 800 800	22223	00000	22.9 22.9 22.9
1	1.7	0 0 N		223.0 223.0 223.9 22.9	2000 2000 2000 2000 2000	00000 00000 00000	222.0
ı	9	0		2223 2223 2227 2237	000000 000000 44400	888888 888888	88888 88888 88888 88888
1	1.5	0. 0. 37.1		00000 00000 00000	2222 2221 2220 2200		88888 88888 88888
(1.4	0.0		00000 00000 00000 00000	221.7	221.6 21.6 21.6 21.6	21.6 21.6 21.6 21.6
				222.8 221.8 21.6 21.6	4 4 10 20 10 4 4 4 10 20 10 10 10 10 10 10 10 10 10 10 10 10 10	221.2	221.22
BET		000		22.9 22.0 21.6 21.4	20.0 20.9 20.9 20.8	00000000000000000000000000000000000000	000000000000000000000000000000000000000
				23.4 21.9 21.3 20.9	00000 00000 00000 00000	88888 88888 88888 88888	220 20 20 20 20 20 20 20 20 20 20 20 20
	1.0			225.5 201.0 201.0 201.5	20.1 19.9 19.9 19.8	19.7 19.7 19.7 19.7	19.7 19.7 19.7 19.7
	6.0			22.9 20.9 20.9	119.3	19.1 19.1 19.0 19.0	19.0 19.0 19.0
	1 00 1			33.0 23.5 29.2 29.2 29.2	22 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	######################################	118.2 118.2 18.2 2.6 118.2
	0.1			2000 1900 1900 1900	18 17.9 17.7 17.6	7. C C C C C C C C C C C C C C C C C C C	17.3 17.5 17.5 17.3
	9.0			0.00 20.8	17.5 17.5 16.8 16.6	118 118 118 118 118 118 118 118 118 118	16.3 16.3 16.3 16.3
	0.5	000		0. 6. 0. 18.7	16.8 10.7 10.7 10.8	2444 2544 2446 2446 2446	0.0.0.0 0.0.0.0 0.0.0.0
	A T	# # # P			20205		88465 88465
					224		

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =0.74

	1					1		9E	1			•	(t	ı	
1 X 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		9.0	0.7	60	6.0	1.0	-	1.2	1.3	4	1.5	1.6	1.7	1	1.9	2.0	
4			i c	, c	, , c) C) C	1	c	, , ,	•				•	·	
	•											•	•		• •	• 5 v	
-	•	·										:> (• •	• •	•	0 1	
	•	· C						C		0	<u>.</u>	œ	9	3	٠.		
	0	·	0	0		0	0.	0	0	27.0	25.4	24.8	24.5	24.4	24.4	•	
49								26.5	24.6	4	m	ъ.	3	m	4	4	
						7	4	м)	m	ь.	10	m	, M	, (M	100	^ا	
					10	2	~	0	~	2		, m	1	1	M	17	
			· 10	, ,-	• •	-				C	ر د	2	, ~	3	1	*	
		•	20.5	20.1	20.4	0	21.1	•	+	2		~	10	~	1	8	
4	19.5		4	•	•	20.4	•	21.3	21.7		22.3	22.6	55.9	23.2	23.4	23.6	
25	7	7	œ	6	0	0	0	•	•		C)	2	~	m	* 2	8	
	\$	7	œ	8	6	0	ô	+	-	•	~	2	2	ъ.	3	3	
	15.8	16.9	17.9	18.7	19.4	0	20.6	21.0	-	-	22.2	22.5	22.8		23.3	23.5	
	ŗ	ċ	L	œ	6	6	0	+	-	+	?	3	0	₩.	3	m	
	•	· ·	7.	8	6	19.9	ċ	+	+	21.8	?	3	~	m	3	Ю	
0 %	ζ.	E	7	00	6	•	c	0	• •4		8	å	~	™)	m	ь.	
	15.2	16.5	17.6	4.4	19.2	0	20.4	50.9	•	_	•	22.5	3	•	3	3	
	3.	¢	-	œ	6	6	0	0	+	+	~	~	5	3	M	3	
	Š	9	7.	œ	6	٥.	0	0	÷	-1	?	2	~	٠ س	*	۵.	
	•	ά.	7	80	•	•	C	C	21.4		22.1	\sim	22.8	23.0		23.5	
	٦.	·	7	80	on	0	0	0	-		~	2	~	м.	~	m	
	3.	·	7	ď	6	о·	j	0	+	+	~	d	3	3	10	m	
37	15.1	16.4	17.5	18.4	19.1	19.8	20.4	50.9	21.4	21.8	22.1	25.5	22.8	23.0	23.3	23.5	
	ζ.	÷	·.	ά	6	6	0	0	$\dot{\cdot}$	7	?	5	2	3	3	3	
		ç	7	œ	6	φ.	ċ	ċ	√-I	+	٠.	8	ċ	m	3	m	



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

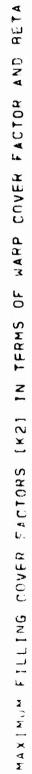
YARN BULK DENSITY = 0.75

								BET					I	1.0	1	1
A M	5.5	9.0	0.7	. 6	0.0	1.0	1.1	1.2	1.3	1 4	. 5	1.6	1.7	i ec i	6	2.0
! ! !	1	1	ı	, , , c	ŧ	1 1 c	! !	! ! !	1 1 1 G	1 1 c	 - C) C) 	, c	
	•	= c	•	= c	•			•				> c	> c			
										•			•	•	. נ	
				= 4				:	•	•	:	•		0 5	•	•
	•							•			0	'n.		•	•	•
								~	•	4	4	4	4	•	÷	4
						0	4	3	2	3	1 00	3	M	8	3	4
	0				4	2	2	22.5		22.8	•		ь.	23.6	23.8	24.0
				~	+	-	÷	2	2	2	2	₩.	3	5	₩	, M
		M:	ċ	-	0	0		*	0	2	~	5	3	3	1	3
	20.6	19.1	19.5	19.6	20.1	20.6	21.0	-		2	25.5	5		'n	3	3
25	7	7	Œ	5	6		Ċ	•	•	e.	~	٥.	6 0	m		3
	9	7	α	6	0	0			-	ς.	~	2	(M	3	2	~
	_	17.1	18.0	18.8	19.5	0	20.7	21.2	21.6	22.0	22.4	22.7	23.0	23.2	23.5	23.7
	5.	ć	7.	ď	0.	0	0	+	•	ò	0	?	?	3	P	3
	_	•	7	•	6	20.0	0	7	*	2	~	5	2	3	3	3
30	3.	•	7	œ	6	0	c	-	-	-	6	~	~	3	₩.	3
	15.3	16.6	17.7	18.6	19.3	20.0	20.6	21.1	21.5	21.9	22.3	25.6	22.9	23.2	23.4	23.7
	5	9	7	æ	6	0	0	.	-	.	~	2	?	3	3	M
	'n	ç	7	8	6	0	0	+	-	;	5	٠ ن	2	٠,	3	3
4 &	5.	•	7	œ	6	·	0	•	+	÷	5	2	0	M	1 20	3
		v.	7	or.	6	6	ċ	٠	-	Ţ,	٠.	N.	~	1	~)	M
	ζ.	· ·	7	α	·	σ.	0	-	•	4-1	?	2	~	3	3	8
2.83	15.2	16.5	17.0	18.5	19.3	19.9	20.5	21.0	21.5	21.9	22.3	22.6	22.9	23.2	23.4	23.7
	$\dot{\mathbf{r}}$	·	·	œ.	6	•	Ċ	1.	+		?	ò	<u>.</u>	.	3	3
	v.	ċ	7	x	•	6	∵	÷	+		·	ì	Ċ	m	*	ريا •

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.76

MARP COVER FACTOR		0 0 1 1	 		1 1 1	!		BET		1		ļ	!	!	•		
- X -	0.5	9.6	D . 7	1	0.0		1.1	1.2	1. E. I	4	1.5	1.6	1.7	1.8	1.9	2.0	
1 1 U	1	! !		 	•	 - c	i i i C	! ! ! c	! ! c			! C	 		•	, c	
	•											,) (•	•	• • •	
	.							•				0	0	·	D 1		
	0	0						•		0	0	;	7	ŝ	·	5	
6 0	<u>-</u>	· -	C	<u>-</u>	0	0	c C		0	29.8	26.5	25.5	25.1	25.0	24.9	24.9	
-		· C							25.7	4	4	4	4	4	4	4	
						0	5	4	3	m	100	3	10	4	4	4	
					S.	M)	~	2	2	m	2	ω.	3	3	*	4	
	° ⊃			, m	22.0	•	2	22.2	22.4	22.7	22.9	23.2	23.4	23.6	23.8	4	
		æ	1.	0	0		•	+	3	å	~	3	۲)	3	12	4	
4.5	22.5	19.5	19.5	•	•	20.8	21.2	-	ö	2	0	m	3	3	M	•	
	r	o	C	c	c	c		•	-	0	C	C	۲	~	~	~	
~	•	0 1		. (•		•	•	•		• u (, 0	·	•	•) r	,) ~	
9 1	10.7	17.0	1 C	7.61	× • • • • • • • • • • • • • • • • • • •		4.00	* * *	0 · T · C	20.00	0.00	2000	1.02	200	7.50	200	
	• • •	•	C (•					•	•	, v (• > r	, P) r	
	ζ,		00	1 0	•	·	•			v (*		· ·	·	。 つ	0 1	
56	Š	ċ	7.	œ.	6		C	+	•	~		\sim	8	8	3	'n	
	ir.	v.	7	ω	o'	0	0	.	•	2	~	2	8	3	m	3	
	'n	\$		α	0	0	C	÷	•	2	S	å	3	3	P	3	
	'n	· ·c	7	9	0	0	0	+	+	2		2	, M)	™	3	3	
	'n	16.7	17.7	18.7	19.4	20.1	20.7	21.2	21.7	22.1	22.4	22.8	23.1	23.3	23.6	23.8	
4		ç	7	œ	6	•	ċ	₹-1	**	•	\sim	5	M)	M	M	M	
	ď	4	7	ox,	6	-	<u></u>			~	0	~	Μ,	P)	M	~	
	15		. 1		0	· c	C			0			, p	~	**		
		. 4	17.7	8 6 6	7.61	20.1	20.7	21.2	21.6	22.1	22.4	22.8	23.1	23.5	23.6	23.8	
	3	ċ	7.	œ	6	0	c	• •	•	2	~	2	8	8		3	
3.9	ζ.	ć	7.	œ	6	ů.	0	+4	• •	à	0	5	~	3	m	3	



YARN BULK DENSITY = 0.77

COVER FACTOR (K1)	- C	· ·	0.7	6	6.0	10.0	1 - 1	BETA	1 . 3	1.4	1 .5	1.6	1.7	1 60	1.9	2.0
	ì	1		1 1	ě	i è	t 5 1	 			1	1 0		1		1
_											C	•		•	=	• •
_											0	0	0.	0	c.	ю Ф
								0		0	.	7.	œ	9	•	5
	7	c	· C	Ċ.		0		C		33.1	27.2	26.0	25.5	25.5	25.1	25.1
19	0					0.	°	41.5	26.4	5	4	4	4	4	4	4
c							4	4	4	*	M.	.~;	4	4	4	4
					• • a		·		مم	, ,) M	, ,~	~	~	4	4
	•			• = 1		·	, (•	• o c) P) M	• •	• •		4
		• =	•	×	6.77	. ,	2.77	1.00	0.77	,,,,,,	1.00	200	24.0	7 7 7		2 4 6
	-	C	4-4	• - :	-		•	·	· ·	·	~	٠ ١	•	٠ د د	· ·	·
4	28.5	20.0	•	•	0	21.0		+	ò	2	٠.	٠,	رم •	3	2	• •
	x	ac	0	6	Ċ	0	•		•	8	~	3	10	٠ س	100	4
. C	4.	_	α	0	_	c	•	-	0	2	2	3	۲,	P)	3	4
		, ,	<u>a</u>	10.1			21.0			~	22.7	23.0	M)	23.5	23.8	4
	9	, ~	oc.	6	0	0			-	2	3	3	5	m	3	4
60	15.8	17.0	•	•		20.3	•		21.9		è	5	23.2	3.	3	24.0
ŭ.	ζ.	4	ď	CIL	5	-	c		•	2	~	2	, M	3	,	4
	2		7	σ.	0		· -		•	~	~	2	2	12	3	4
	3	· ·	1	00	0	0	C	-		2		d	3	3	2	4
		16.8	17.9	A . B	19.6	0	20.8	21.3	21.8	22.2	22.6	22.9	23.2	23.5	23.7	4
a.		\$	7	œ	0	20.5	C	-	+	2	ζ.	cu	3.	3	5	24.0
	7	4	7	α	ď	c	·			\sim		ÇU	M)	3	*	4
	· d						•		١,	C	C	·		-	~	4
	'n.	ċ	•	x (· (•	- (v			0 1	,	0 6	•
3.7	15.4	14.7	17.8	18.7	19.5	20.5	20.8	21.3	21 · R	20.00	25.6	20.00	23.2	2.5. C. 10.	63.1	24.0
	ζ.	ċ	7	٠ رر	·	0	c			· ·	٠,	~	٠,	2 1	٠	• •
	5	ξ.	٧.	a C	•		c	+		Ċ.	ς.	\sim	,	٠.	~	4

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 9.78

	10				!		1	60 ⊞					t 1 1	:	1	1	•
- X	0.5	, v	0.7	1 & 1 C	0	1.0		1.2	F . 1	1.4	٠. ت	1.6	1.7	1.8	1.9	2.0	
1 8 L	4	1 2 (1 1 (! !	1	•	i I (6 6 6	1 1 1 •	 	i 				•		1
															•	•	
													0	-	·	œ	
											0	0	6	7.	•	9	
	0	c	c	0	c)	0	0	0	0	•	28.0	26.4	25.8	25.5	25.4	25.3	
19						0		.0	27.3	25.6	E)	4	4	4	•	4	
						C	7	Š	4	4	4	4	4	4	4	4	
					7	4		. ~		M.	. 1	~	P.	4	4	4	
				ır		0			, ,	M7	, M		M.	4	4	4	
			~	•		, , , , ,	. +	2	2	CU	, M)	· ~	, m		24.1	4	
4	-	2n.6	20.1	20.3	20.7	21,2	21.6	22.0	22.3	22.7	23.0		23.6		4		
	a	o	c	q	c	c	•	•	C	C	C	~	**	M	4	4	
` '	0 1	• C: (•		•	•		•	, (, () r	•			
	1/.7	- LOS	5 6	7.61	2007	· 02	7:12	61.1	22.1	20.00	22.9	2.50	۲۰۲۶	7.00	24.0	7, 4, 0	
	ċ	•	•	•) (•	•	, ,	u c		•) r	, ,) r	•) F	•	
	Ċ	•	c	•		•		-		•		·	0	٠ ٢٠	٠ ١٠	•	
56	٦.	7	œ	6	6	Ċ	+	•	2	CV	Ċ	~	·	~	יי	4	
0 10	3	7	ac	6	6	0	•	•	2	2	~	8	M	W	3	4	
	٠.	7	ď	0	6	0	-	7-1	?	2	°.	8	3	(א	3	4	
	37	5	Œ	œ.	0	0		-	8	2	2	3	8	3	, M	4	
	15.4	16.9	18.0	18.0	13.7	0	21.0	21.5	21.9	22.4	22.7	23.1	23.4	23.6	23,9	24.1	
4	ζ.	Ġ	о <u>с</u>	œ.	6	20.4	0	+	**	5	,	3	3	m	3	4	
	r.	·	7	œ	6	0	Ċ	·		2	2	8	100	М.	80	4	
	J.	4	7	α	6	<u>_</u>	_			2	5	~7	M.	~	~	4	
			_	or,			· c	• •		2		٠ *	, m	· M	8	4	
33	15.4	٦٤.٩	17.9	18.9	19.4	20.3	20.9	21.5	21.9	22.3	22.7	23.1	23.4	23.6	23.9	24.1	
	•	ζ.	7.	ď.	6	0	0		+	~	·	,	ب	8	*	4	



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.79

•	2.0	.0	·	•	n	ŗ.	24.9	4	4	4	4	4	7	4 · 4 · 4	4	•	4	4	4	4	•	24.3	4	4	24.3	4	4
1	1.9		5.0	0 4	0.0	5.0	24.7	. J	4	4.5	4.2	4	•	1.40	. 4	•	•	4.1	4.1	4.1	24.1	4.1	4.0	0.4	24.0	4.0	4.0
• •	1.8		ċ	27.9	v 1	'n	24.6	4	4	4	4	100	. ~	200	•) M) 1	٠ د	8	3	₩.	23.8	3	8	~	23.8	3	3
	1.7	. 0	Ġ	30.5	•	N.	•	4,	M	∵ >	<u>س</u>	~		0.5.0 A	• > M	9	3	m)	M)	3	23.5	3	w.		23.5	*	M
•	1.6	. 0		٠		٠.		۲,	۵.	_	m	H7		0. K) M	? !	8	₩.	8	~)·	23.2	₩.	w)	~	23.2	₩,	<i>ۍ</i>
1 1 1	34		•		•			۳,	3			P.		0.50		•	C	0	2	~	22.9	~	ζ.	c.	22.9	~	~
1	1.4	· · · · · · · · · · · · · · · · · · ·		0	0		•	∾.	۵.	M	5	C		, , , ,	, c		cv.	2	2	5	22.5	0	2	S	22.5	~	·
	بنة دما			0	•	හ	4	3	~ ~	22.7	2	C	J (ָ מַנְ מַנְ		,	5	~	è	5	22.1	ò	2	C	22.1	Š	2
8 I	1.2	0					5.	ان	ċ	•	0	c	• J •	21.0	• - ; •	+	•	•	•	-	21.6		•	,	21.6	•	-4
	1.1	0.0					0	~	5	i	•		•	4.12		;	~	÷	•	<u>.</u>	•	•			21.1		-
1	1.0	0					c	ħ.	°.	•	21.5		•	200	D (•	0	0	0	_	20.5	ċ	0	_	00.00	· c	0
! ! !	0.0					0.		٠	3	•	0	с с	•	= c	,	0	0	6	0	0	6	19.8	9	0	۵.	6	•
1	0.8	0				· C	. :	C.	7.	***		c	•	40.0	•	·	·	0	0	5			0	0	0 0	0.	6
•	0.7			· c					Ċ	~	20.4	O	•	4.00 5.4		œ	œ	œ	30	ď	œ	18.1	œ	α	18.0	. ac	œ.
•	c			<u>.</u>		ć				•	21.5	c	•			7.	7	7	,	7	17.0	7	7	4	0.4	ć	·T.
1 3	0.5	==				0	с •				9	3	• !		• 0	ċ	9		5	r.	v.		ι.	٠,	1, c	<i>'</i> .	τ.
	, ,	15																					3.5				

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR IND BETA

YARN BULK DENSITY = 0.80

SYTE C						1	1	90 EE		1	(1	1	1	1
- AC - CX	ا . د		0.7	0.0	6.0	1.0	1.1	1.2	1.3	4.1	1.5	1.6	1.7	60	4.9	2.0
! ! ! ४	: <u>=</u> 1					 		 			 					. 0
												•	0	0		0
											c	0	~	0	7.	•
	0	· c	0	0	0.				0	0	30.4	27.5	26.5	26.1	55.9	25.8
19			о С	• 0				0.	30.1	26.7	r.	S.	5	5	5	5
20						0	3	÷	ů.	4	4	4	4	4	4	T)
	0		0	ت د	0	26.2	24.4	23.9	23.8	23.9	24.0	24,1	24.3	24.5	24.7	24.8
			C	5	M;	~	2	₩)	3	3	m)	8	4	4	4	4
						ċ	~	0	ċ	Š	3	3	4	4	4	4
			6	0	+		• •	5	2	ن. •	8	رم •	M	4	4	4
25	0	•	0	-	0		+	8	2	\sim	10	M	₩	4	4	4
	17.7	18.4	19.1	19.8	20.5		21.5	22.0	22.4	22.8	23.5	23.5	23.8	24.0	24.3	24.5
	ċ	7	œ	•	0	-		H	5	2	3	3	3	4	4	4
	\$	7	œ	4	0	0	;	+	5	٥.		٠ <u>٠</u>	3	4	*	4
	•	7	60	6	0.	o.	•	+	ò	Ci	M	3	3	4	4	4
3.0	•	7	œ	0		0	7	+-4	5	5	M3	8	3	4	4	4
	3	7.	œ	6	င်	ů.	•	,	÷	?	·	· ·	, ,	4	4	4
	15.8	17.2	18.5	19.5	20.0	20.6	21.5	21.8	22.2	22.7	23.0	23.4	23.7	24.0	24.2	
	ŗ.	<u>.</u>	œ	·	6	0	•	+	2	2	ς,	٠.	٠,	٠ •	4	4
	s.	7.	60	0	0		1.	-	Ċ.	2	~	•	M	5	4	
	5.	7	α.	•	0	0	•	+	8	2	ارمة •	٠×.	3	2	4	4
	3.	7	œ	6	6	0	•		5	٠ ا		3	3	٤,	4	4
	· v	7	œ	Ġ	о О	0	;	÷.	÷	~	M) (رم د	٠ ا	י נא	÷ .	4 .
00 C	15.7	17.0	18.2		9 0	0.02	21.2	21.7	22.2	22.6	23.0	23.3	23.7	23.9	24.2	4.40
	•	•	c C	•	•	•	•	•	v	·	•	"	•	•	•	•



MAXIMIM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.81

FIVE-HARNESS WEAVE FABRICS

307 424 1207 12		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	0 0 0 0 0 0 4 5 5 5 5 5 5 5 5 5 5 5 5 5	74 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	141 CCCC C4W00	m - 00000 04 W W C C	4	4 0000 N N N N N N N N N N N N N N N N N	-	4 4 4 4 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	800 0000 11 0000 4444	0000 0000 0000 0000 000 0000 000 0000	0000 00000 41 0000 04444	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 00000 BEERE ESERE 4 100000 04004 100000		\rightarrow \bigcirc					· · · · · · · · · · · · · · · · · · ·						 १ वक्षक विवयंत्र विवयं		. 44444 44444 44444

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.82

		! ! !	 		1	! !	 	BET				1 1	1	1	;	1	1
4 m 1		, v, i	0.7	C	6.0	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	1
5	•							0	ت			0			0		
_	0	· c	· C		c.		0	C	0		· c	0	С	0	ů.	33.2	
												0	0	0	•	7.	
										0	0		•	9	•	•	
	•						ċ			28.1		9	5	ĸ,	5.	S	
		C.				0	6	~	5	5,	*	ις,	5	N.	r.	5	
						Ġ	5	4	4	4	4	4	4	4	5	5	
	0	c	0	0	رn .	•	23.5	23.5	23.6	23.8	24.0	24.2	24.5	24.7	24.9	25.0	
		c.				c,	?	*	8	٠,	3	4	4	4	4	3	
		25.7		.		+1	2	Ċ	ю.	m	M	, M	4	4	4	4	
	$\dot{\sim}$	c.	c	c	~~·4	w-4	2	2	<i>⊘</i>	M 3	M	~	4	4	*	4	
		1 a d	19.5	20.5	20.P	•	-	22.3	2	25.1	23.5	23.8	4	24.3	24.6	4	
		å	٠ د	6	=	-		?	?	3.	₩.	m	4	4	4	4	
	ė	7.	α.	6	c:	+	-	2	2	δ.	*	~ ⊃	4	4	4	4	
		` `	•	· •	۰	7	21.6	\sim	•	٠ دري	3	м М	24.0	4	4	24.8	
0	ç	7	α	•	e.	•	•	~	$\dot{\circ}$	*>	PC	~ ⊃	4	4	4	4	
	16.2	17.5	18.6	49.5	20.3	20.9	21.5	22.1	55.5	55.9	23.3	23.7	24.0	24.3	24.5	24.8	
	ċ	7.	α.	0	с	ć		2	5	2	™	۵.	4	4	4	4	
	ç	١,	α.	œ.	0	c.	-	?	5	ر. ح	ь.	٠ س	₹ 7	₹.	•	4	
	•	٠,	œ	•	c.	c	**	, ,	ò	∴	P .	3.	4	4	4	4	
45		7	•	0	c.	-	•	\sim	O.	\sim	m	(۳	4	4	4	4	
	ľ.	6	αC)	٠ ۍ	_ _	0		$^{\circ}$	ċ	CV	م	~	4	4	4		
	٠ ۲ ٠	. 7 . 4	1α. 4	19.3	20.2	50.9	21.5	22.0	55.2	55.9	23.3	23.6	24.0	24.2	24.5	24.7	
	· ·	`	α.	0	0	0		?	ċ	~	3	~	~	4	4	4	
	1.	7	٠ م	0	Ċ	Ċ		ς.	Ċ	\sim	~	~>	(۲۰	4	4	₹.	



MAXIMUM FILLING COVER FACTORS (42) IN TERMS OF WARP COVER FACTOR AND BETA

YARN RILK DENSITY = 0.83

	1.3 1.4 1.5 1.6 1.7 1.8 1	• • • • • • • • • • • • • • • • • • • •	. 0. 0. 0. 0.	. 0. 0. 0. 31.4 2	. 0. 0. 29.8 27.9 27.	. 29.0 27.1 26.3 26.0 25.9 2	4 25.6 25.4 25.3 25.3 25.4 2	.6 24.6 24.6 24.7 24.9 25.0 2	.8 24.0 24.2 24.4 24.6 24.8 2	.4 23.7 24.0 24.2 24.5 24.7 2	.2 23.5 23.8 24.1 24.4 24.	.0 23.4 23.7 24.0 24.3 24	.9 23.3 23.6 23.9 24.2 24.5 2	2 23.6 23.9 24.2 24.5 2	.8 23.2 23.5 23.9 24.2 24.4 2	.7 23.1 23.5 23.8 24.1 24.4 2	.7 23.1 23.5 23.8 24:1 21.4 2	.7 23.1 23.5 23.8 24.1 24.4 2	7 23.1 23.5 23.8 24.1 24.4	.6 25.1 23.5 23.8 24.1 24.4 2	.6 23.1 23.4 23.8 24.1 24.4 2	.6 23.1 23.4 23.8 24.1 24.4 2	.6 23.1 23.4 23.8 24.1 24.4 2	0 23.4 23.8 24.1 24.4	.6 23.0 23.4 23.8 24.1 24.4 2
BETA	9 1.0 1.1 1.2	• 0 • 11	0.0.0	0.0.0	0. 0.	0.0.0	0. 0. 29.1 2	34.8 24.0 24.9 2	5 24.3 23.8 23.7 2	9 22.8 22.9 23.2 2	R 22.1 22.5 22.8 2	3 21.7 22.2 22.6 2	0 21.5 22.0 22.5 2	7 21.3 21.9 22.4 2	6 21.2 21.8 22.3 2	5 21.2 21.7 22.3 2	4 21.1 21.7 22.2 2	4 21.1 21.7 22.2 2	4 21.0 21.6 22.2 2	3 21.0 21.6 22.2 2	21.6 22.2 2	3 21.0 21.6 22.1 2	3 21.0 21.6 22.1 2	3 21.0 21.6 22.1 2	3 21.0 21.6 22.1 2
	n.6 0.7	-	. 7.	0	0	. u . 0.	0,000	0 0 0	0. 0. 26	n. n. 24.n 22	.9 22.2 21.7 2	0.5 20.5 20.8 21	9.1 19.7 20.3 20	R.4 19.3 20.1 20	R.1 19.0 19.9 20	.8 18.9 19.7 2	7.7 18.8 19.7 20	7.4 18.7 19.6 20	7.5 18.6 19.6 20	7.5 18.6 19.5 20	.4 18.6 19.5 20	7.4 18.5 19.5 20	7.4 18.5 19.5 20	7.4 18.5 10.5 24	7.4 18.5 19.5 20
	K1	0	9	7	30	6	0	9	- C	ري د	4	25.	14.	7 17.	8 17.	9 1	0 16.	1 16.	2 16.	3 16.	4	15.	14.	7 14	

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.84

9																
O S E R							1	96	((1	1	1		
(K1)	0.5	9.0	0.7	0	6,0	1.0	•	1.2	1	4	1.5	40	1.7	↔	1.9	2.0
1	6	ŧ	•	•	•	6 6 6	! !	l 1	! ! (1 - 	i !	ı	 	1 1) (
			0											•		•
			-											0	°	•
			<u>-</u>							0		0	0	m	6	φ.
												-	α	1	1	¥
	•			•		•				× 0 ×	27.6	26.7	26.20	26.00	26.40	26.00
			•			•				•	•	•	•	•	•	•
				6			0		7	9	5	ľ.	5	5	3	S.
						0	9	5	4	4	4	4	5	5	5	5
					00	4	4	4	4	4	4	4	4	in.	S.	r.
				4	, M	P7	M.		1	رما	4	4	4	4	ic.	R.
			22.8	22.0	22.1	22.3	22.7	23.0	23.3	23.7	24,0	24.3	24.5	24.8	25.0	25.5
) 													
	•	÷	0	+	·	•	3	2	ň	3	3	4	4	_	•	Š
	6	0	6	0	+	1	3	2	м •	3.	3	4	4	4	•	5
	7	œ	0	0	0	+4	2	2	3	3	, (M	4	4	4	4	r,
	7	σc	0	-	0	+	•	2	3	3	3	4	4	4	4	Š
	16.8	18.0	19.0	19.9	20.0	21.3	21.9	22.4	22.9		23.7	24.0	24.3		24.8	25.1
C P	4	-	α	0	2			,	,	(•	4	4	4	4	S
	16.4	17.7	00	19.7	00.5	21.2	21.8	22.3	22.8	23.2	23.6	24.0	24.	24.6	24.8	25.1
			σ	0	<u></u>	, , 	-	, (,	~	~	M	4	4	4	u.
	•		• a	. 0			1 +	. 0		, , ,) M	, M			4	, tr
	•	•	•	•	•		•	J (u c	• •		• > r	•	•		
	·	7	œ	· •	•	• -1		·	·	•	•	• >	4	4	4	, ,
35	•	•	œ	0	0	+	•	2	2	₩,	3		4	4	4	3.
	9	r.	a	6	0		+		2	, M	m	~	4	4	4	5
	¢	7	œ.	0	Ç,	.	÷	ċ	5	~)	W	<i>ي</i>	4	4	4	Ŋ
3.8	16.1	17.5	18.6	19.6	20.4	21.1	-	22.3	22.8	23.2	23.6		24.5	24.5	24.8	•
_	ċ	7	œ	6	0	+		5	2	3	3	.×>	4	4	4	'n



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.85

FIVE HARNESS WEAVE FABRICS

BETA	U.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2		. n.	. f, a. n. o. n. a. o. o. a. n. o. o. o. o.	. r. n. n. n. n. n. n. 0. 0. n. 0. 0. 36.7 30.2 28.	. n. n. 0. n. 0. 0. 0. 0. 0. 0. 32.8 29.0 27.9 27.3 27.	0. 0. 0. 0. 0. 0. 0. 0. 32.2 28.1 27.1 26.6 26.4 26.3 26.	. 0. 0. 0. 0. 0. 35.7 27.6 26.4 25.9 25.8 25.7 25.8 25.8 2	. 0. 0. 0. 0. 27.6 25.7 25.2 25.0 25.1 25.1 25.3 25.4 25.5 25.	. n. n. 31.2 25.3 24.5 24.3 24.4 24.6 24.8 25.0 25.2 25.4 25.	. 0. 26.0 23.7 23.4 23.4 23.6 23.8 24.1 24.3 24.6 24.8 25.0 25.2 25.	. 0. 23.6 22.4 22.3 22.5 22.9 23.2 23.5 23.8 24.1 24.4 24.7 24.9 25.2 25.	21.6 21.1 21.3 21.7 22.1 22.5 22.9 23.3 23.7 24.0 24.3 24.6 24.9 25.1 25.	0 0 10 4 30 1 30 7 31 4 31 8 32 4 32 9 33 6 34 9 34 3 34 8 35 1 35	8.1 18.8 10.6 20.4 21.0 21.0 22.0 22.1 23.1 23.5 23.9 24.2 24.5 24.8 25.0 25.	7.3 18.4 19.3 20.2 20.9 21.5 22.1 22.6 23.0 23.5 23.8 24.2 24.5 24.7 25.0 25.	R 21.4 22.0 22.5 23.0 23.4 23.8 24.1 24.4 24.7 25.0 2	6.7 18.0 19.0 19.9 20.7 21.4 22.0 22.5 23.0 23.4 23.8 24.1 24.4 24.7 25.0 25.	6.5 17.8 18.9 19.9 20.6 21.3 21.9 22.5 22.9 23.4 23.8 24.1 24.4 24.7 25.0 25.	6.4 17.8 18.9 19.8 20.6 21.3 21.9 22.5 22.9 23.4 23.7 24.1 24.4 24.7 25.0 25.	6.3 17.7 18.8 19.8 20.6 21.3 21.9 22.4 22.9 23.3 23.7 24.1 24.4 24.7 25.0 25.	17.6 18.8 19.7 20.6 21.3 21.0 22.4 22.9 23.3 23.7 24.1 24.4 24.7 25.0 25	4 0 17 4 48 H 10 7 00 E 01 3 01 0 00 4 00 03 3 01 7 04 1 04 4 04 7 04 9 05.	10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	6.2 17.6 18.7 19.7 20.5 21.2 71.9 22.4 22.9 23.3 23.7 24.1 24.4 24.7 24.9 23.	16.2 17.6 18.7 19.7 20.5 21.2 21.9 22.4 22.9 23.3 23.7 74.1 24.4 24.7 24.9 23.2	6.2 17.6 18.7 19.7 20.5 21.9 22.4 22.9 23.3 23.7 24.1 24.4 24.7 24.9 23.	6.2 17.6 18.7 19.7 20.5 71.2 21.9 22.4 22.9 23.3 23.7 24.1 24.4 24.7 24.9 25.
	(K1)	1						20										0								\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.86

	; 1	:	(! !	BET			1 1	1	1		•	!	!
4 - 1	.5	9	0.7	80	6.0	T 0	1.1	1.2	1.3	4.4	1.5	1.6	1.7	1 1 1	1.9	2.0	1
i i	; ! !	8 1 :	i I	; ;	•	l I)) ;				•	c	
															•	•	
															•	0	
												•	•	U	+	·	
_										0	0	36.6	0	œ	27.7		
-	·	C	0.	0.	0.	0	0.	.0	. 0	36.3	28.8	*	56.9		9	9	
		c					c		QC.	9	×	9	9	•	•	40	
						C	α		, R	5	3	5	5	5	2	5	
						, L	4	4	4	4	4	5	5	5	.0	5	
				7	4	7	M)	10	4	4	4	4	'n.	Š	4)	Ŋ.	
	0	0	24.5	22.8	22.6	22.8	23.0	23.4	23.7		24.3	24.6	24.8		25.3	25.5	
č,		٥.			-	2	0	i,	3	3	4	4	4	'n	S	5.	
	0	0	· c	0	7	2	2	ò	3	F)	4	4	4	S.	5	5	
	· œ	19.0	19.8	20.5	21.2	-	22.3	22.8	23.3	23.7	24.0	4	24.6	24.9	25.2	25.4	
	,	œ.	0	0	+	**	2	2	3	3	+	4	4	4	5	5	
	17.1	ά	•	Ċ	0.	•	0	?	3	m	3	24.3	4	4	S.	5	
	9	σc	6	0	0	•	c	ò	100	80	(M	4	4	4	5	5	
	16.6	18.0	19.1	20.0	20.8	+	22.1	22.6	23.1	23.5	23.9	24.2	24.6	24.8	25.1	25.4	
_	·	7	6	6	-	v=4	2	~	ار. •	٠.	3	4	4	4	5	3	
	\$	۲.	σ;	6	0	-	0	~	3	~	(ما	4	4	4	5	3	
	•	7	•	•	•	21.4	ς.	2	•	3	3	4	4	4	5	u\	
	9	7	οc	C	c	-	~	0	₩)	, so	P .	4	4	4	5	5	
		í					, ור		~	~	~	4	4	٧	ur	4	
-			c α	, 0		• •			, M	. n	. M	4	4	4	, 10	5	
, x	× .0	17.7	x .	20.	20.6	21.4	20.0	22.5	23.0	23.5	23.9	24.2	24.5	24.8	25.1	25.3	
	9	7 °	a.	0	<u>.</u>	·	~	~	m	<i>ي</i>	3	4	4	4	S.	رة	



MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.87

•	0 1	•	•		•	•	•	•	•	•	•		•			•	•	•	'n	•	•	•	•	•	•	•	ĸ	•
ì	0 1			C	u (2	V	2	~	N	25	2	2	C	20,0	~	0	J	25	~	2	C	(V	2	~	~	25	C
0 3 0		· •	C		Ja	0.07	ċ	\$	3	3	25.6	5	5	ď	25.3	S	u.	١	25.3	S.	r.	رى	ĸ.	5.	Š	3.	25.5	5
1	1.8		· C			/ . 20	J	ć	م	ŗ.	25.4	5	5	ď	75.7	5	ır	•	25.0	J.	د	5.	5.	5	5	5	25.0	น่ำ
1	1.7			• > c	5 c	c.00	•	9	5	5		ŗ.	4	4	24.8	4	4	•	24.7	4	4	4	4	4	4	4	24.7	4
1	1.6	· ·			•		•	•	ς.	5.	4		4	4	1. 4. T. T.	4	4	•	24.4	4	4	4	4	4	4	4	24.3	4
•	1.5	! ! c					·	¢	r.	٠.	4		4	4	24.0	ঝ	4	•	•	4	4	4	4	4	4	4	24.0	4
	1.4							7	5	4	24.4	4	4	~	23.30	h-7	14	•	23.7	3	3	ω.	~	۶.	7	۵.	23.6	۶.
1	. ±	1 0						6	5	4	4	53.9	₩	~	2.50	, M	, M	•		M	, M		3.	~	3	, M,	23.2	۵.
8ET	1.2	 c							ċ	4	4	23.5	M	P-	7.50		,	•	~	~	2	22.7	ċ	~	ς.	2	25.3	'n
! !	, i	 c				0		Ċ	<u>-</u>	م	~)	23.2	~	2	22.5	, ,		•	?	Ċ	?	25.2	2	~	2	` ∼	22.1	$\dot{\sim}$
1	1.0	i c				.			0	ø.	4	23.0	~		21.0	• •	•	•	***	÷	I	+	21.5		,	•	21.5	H
	0	 						0	•	6	4	ò		•			•	1	 1	œ.	•	Ċ	0.	0	C	· c	80.0S	ů.
	0 . 8	1				-		0		C	ċ	23.2	-	, 1 T	2007			_	0	Ċ.	ċ	C	•	·	0	5	10.0	0
ı	n . 7	! !					·				\subset	25.8	•	, , c	0 - 0	. 0	• 0	•	6	0	6	0	10.0	6	0	5	18.9	ac.
,		 					•	· c				c	~		2 2 2	• a	• : a	ċ	α	œ	a ,		_	7	7		17.8	7
	ι (ι ⊂	1 1 == 1				-	.					٠.				, ~			7	ċ	c	ċ	16.5	•	v.	•	16.4	4
	4 F	1 4 1 R	· •	2.5	· (0	0	0 0	21	22	23	40	25		0 7 0	, c			3.0	71	32	33	4	35			38	

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.88

	0	30.	22200	• • • •		
	0		1010101010	2222 2323 2323 2323 2323 2323 2323 232	20 20 20 20 20 20 20 20 20 20 20 20 20 2	~~~~~ ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2000 2000 2000 4000 2000 2000 2000 2000	000000 000000 000004	000000 000000 44444	000000 000000 0000000 0000000000000000
1 1 1 1	1.8	2000	000000 00000 00000 00000	25.53	22.52.2 22.52.2 23.11.2 23.11.2 23.11.2	255.11
	1.7	0. 0. 31.6 27.6	2000 2000 2000 2000 2000 2000 2000 200	22 4 2 4 2 4 2 4 2 4 2 4 2 4 2 4 2 4 2	0.00000 44444 0.000000	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	1.6	00000	000000 00000 00000 00000	00000 4444 0 7 9 9 9	00000 4444 00000	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
; !	U` 1		00000 00044 0000	00000 4444 04000	00000 44444 00000	44444
1	4.1	00000	7 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	00000 44000 00000	0000000 0000000	23.7 23.7 23.7 7.82 7.82
1	1.3	00000	0 0 0 0 4 4 0 0 0 4 6	ろろころろ 333333 87654	できるのの おきちちき 4 4 5 5 5	$ \begin{array}{c} 0 \\ 0 \\ 0 \\ 0 \\ \end{array} $
8ET/	1.2		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	888888 48400	00000 00000	000000 00000 00000
1	1:1	00000	8000 041048 0044	と さん さる で し ひ し し り ら ろ ろ ろ ろ ろ ろ ろ ろ ろ み	00000 00000 40000	22222
1 1	1.0		0 0 7 7 8 8	2000 2000 2000 2000 2000	21.7 21.7 21.7 21.7	21.6 21.6 21.6 21.6 21.6
	0.0		2000 2000 2000 2000	8000 8000 8000 8000 8000 8000	21.1	20000
	0 . 8	00000	0000	00000 01000 0000	2000 2000 2000 2000 1100	200.0
	ŋ.7		28.0	2000 2000 1000 1000 1000	91 91 91 91 91 91 91 91	1.00 1.00 1.00 1.00 1.00 1.00
	9.0	00000	00000	24.6 20.6 10.6 18.6	4 0 4 6 6 6 7 6 7 6 9 9 9 9 9 9 9 9 9 9 9 9 9	17.9 17.9 17.9 17.9
1	0.5	00000	00000	222.3 19.01 17.00	7 7 7 7 7 9 1 1 4 4 7 9 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	100 100 100 100 100 100 100 100 100 100
WARP COVER FACTOR	[X 1]	11 11 11 11 11 11 11 11 11 11 11 11 11	01000			5 5 5 6 5 6 5 6 5 6 5 6 5 6 5 6 5 6 5 6

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.89

1	2.0	10101	, ,,,,,	000000 00000 00000	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	22 22 22 22 22 23 23 23 23 23 23 23 23 2
•	6.1	4 / 1	, 0,000	~~~~ ~~~~	r v v v v v o o v v v v	α α α α α α α
•		, wo	v 64976 v 64979	N 4 4 . W	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	88888 88888 88888
t I	4	~ :	~ ~~~~		00000 00000	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~
	1.7	00000		25.2 25.1 25.1 25.1 25.1	25.0 25.0 25.0 25.0	22.0 20.0 20.0 20.0
	1.6			0.0000 4.444 0.000 0.000 0.000	4444 4444 74	00000 4444 00000
	₹.5	6000	~ veru4	000000 4444 20044	00000 4444 wwwww	000000 4444 888888888888888888888888888
	4.4	0000		22200 4444 8.244 0.00	223.9 23.9 23.9 23.9	00000000000000000000000000000000000000
•	1.3	C C C C C		223.0 233.0 23.0 6.0 6.0	22222 22222 22222	000000 000000 44444
BET	4.2			2222 2223 4.822 5.83 1.83	23.0 23.0 23.0 23.0	00000
	1.1			223.2 223.2 22.7 22.7	222 222 222 324 444	00000 0000 4 4 4 4 4
1	1.0	0000		22.8 22.5 22.5 22.1	21.9 21.9 21.8 21.8	21.8 21.7 21.7 21.7
	6.0	0000	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	~~~	· · · · ·	221. 221. 20. 1. 20.
	0.8	0000	C C C C C C V	000	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	00000
!	0.7	0000			119 119 119 12 12 13	110000
	j.6				8 1 1 1 1 8 1	4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6
,	1 = 1 = 1 = 1 = 1 = 1 = 1 = 1 = 1 = 1 =					4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
	4 A	21 27 20 1 20 1 20 1	+ 00000 • 04084			
				250		



MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.93

0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
2.7. .0. .0. .0. .0. .0. .0. .0.
•

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.91

								BET							!	1	
A X		9.6	0.7	3.6	0.0	1.0	1.1	1.2	1.3	 	4.5	1.6	1.7	1.8) + I	2.0	,
1	•	1 1	l 1	•	! ! !	 	l I	t 1 1	1	ı	 	i i	! ! !		1		
25																•	
16				œ.				0		0	9	0		0		0	
17											C		0.	0	0	÷.	
3 0											<u>.</u>	0				•	
19	· c	<u>-</u>			0	0.	c	C C	0		38.8		a 0	œ	7	_	
00	tu	c	c					_	•	6	60	7		7		7	
, C						•	•	0	7	9		9	9	9	9	•	
100	• ,					7			, r	7	, IC	J.	•	9	•	•	
). (c					00			4	, iv	5	2	5	5	26.0	26.2	Š	
4	=			25.5	24.2	24.6	24.1	24.3	24.6	24.8	25.1	25.4	25.6	5		26.3	
25			3.	2	٠ ن	2	3	3	4	-	24.9	25.5	25.5	25.8	26.0	26.2	
26		~	-	•	2	3	3	M	£,	4.	4.	ľ.	r.	'n	•	•	
27	<u>-</u>	=	-	-	'n	2	3	8	4	4	4	5	S	5	Š	•	
28	\mathbf{x}	6	C	•	+1	2	6.22	23.5	3		4	5	r.	S	S.	ý	
58	17.9	19.0	20.0	50.9	21.6	22.3	5	₩.	•	4	4	5.	5	5	5	·	
V **	~	a	0	c	4-	C	C	M	M.	4	4	7	3	5	5	~	
O 4	• ^		•	• : c	•	נו			, ,				ı	i.	Ľ	· •	
3.	•	•		= 1	· ,	i		0 1	0 6	•		•			\		
35	•	oc.	·			·	1.77		1.07	7.57	0. 27	6.47	62.5	0.62	67.0	1.02	
33	7.	α	•	ċ	-!	å	0	·	3.	•	4	4	5	v.		ò	
3.4	14.9	14.3	19.5	20.5	21.3	22.0	2	3	•	4	4	4	'n	5	N.	•	
ı lı u	V	5	C	(•	c	C	۲	~	4	<	4	ď	u	Γ	×	
5	•	τ.	•	=	•		V (•) I	• > 1	•	•	•	•	٠, ١	• •	,	
36	ċ	ά	•	ċ	•	2	2	3	٠,	÷ .	4	4	v 1	v 1	· ·	· •	
37	ė	α.	o.	ت	;	2	·	~ •	M	4	4	4	ر •	٠.	, i	•	
3.8	16. R	18.2	40.	7.0.4	21.2	25.0	25.4	23.5	23.7	24.1	24.5	24.9	25.2	25.5	25. B	26.1	
62	ć	ά	o	· -	.	?	<u>٠</u>	M	·	4	4	4	r.	5.	5	÷	

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.92

							1	BET		1	1		(1		1
<u> </u>	: : : :	9.0			6.0	1 0 0		1.2	1.3	1.4	1.5	1.6	1.7	1.8	6 1	2.0
1	1) C	,	· c		, c	· c			_	ć	c.	c		c	<u>-</u>
				• > •	•											
				•												•
				<u>.</u>										0	•	4
				٥.	0							0	0.	2		6
	0.	·	0.	· c	0.	0.	0.	.0	0		c	31.0	26.5	28.4	28.1	27.9
					•					,		r	r	r	P	٢
					0	0		° 0	0	•		•	,	•		•
					0	C	0	-	8	7.	•	•	•	•	•	·
						0	7	•	9	Š	9	•	9	٠,	•	• 9
				•	6	•	S.	5	5	5	5	5.	9		ċ	•
	0,	0	0.	56.5	24.5	24.2	24.3	24.5	24.7	25.0	25.3	25.5	25.8	26.0	26.3	26.5
		C	4	100	3	P)	w.	4	4	4	E	5	in	5.	•	9
	•	~	1.	2	0	3	m	3	4	4	r V	5	r.	5	•	ø,
	0	<u>-</u>	1.	•	·	2	3	8	24.1	4		5	5	25.8	26.1	26.3
	ac	0	0	•	***	2	M:	3	4	4	4	5	5	5	•	9
	14.1	10.5	20.1	21.0	21.7	22.4			•	24.4		25.1	25.5	5	\$	•
	7	oc.	0	_	+	•	8	M)	20	4	*	5	5.	5.	•	9
	7.	ď	0	0	*4	2	?	~	3	4	4	ت	5	'n	9	. 9
	,	· oc	O	·	1.	2	22.8	23.4	3	24.3	4	•	_		26.0	26.2
	~	α.	0	-	1.	ò	0	K	3	4	4	5	5	ď.	9	3
	17.0	4.	10.6	9.02	21.4	22.1	•	3	•	4	24.7	5		5	•	•
	~	•		c.	1.	2	2	K	P3	4		24.1	5.	25.7		•
	9	ď	6	<u>-</u>	1.	2	(J	• ™	×.	4	4	5.	5.	3	÷	ò
	16.9	18.3		20.5		22.1	22.8	23.3	23.8	24.3		•	25.4	•		26.2
	6	ď.	0	•	1.	2	2	3	3	4	4	5	Ŋ	5	9	. 9
	9	ď.	0	ċ	+	2	5	~ ;	3	4.	4	5	5.	'n	.	•

MIXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.93

	2.0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7.7.5 6.7.5 6.7.6	00000 nnvv44	4 4 4 4 4	6 0 0 0 0 0 4 4 4 W W
	0	6 4	らって 5 るる 2 0 0 0 0 0		00000 HHHHH	2222
i	जन । जन	00000	286.	00000	2866	22.56 25.66 25.66
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	98	00000 00000 00000	0 0 0 W W	2222 2323 2000 2000 2000	255.8 255.8 255.8 8
1	1.7	00.00.7	26.9 26.9 4.9 25.9	255 255.7 255.7 255.7 25.6	2255 255 255 255 255 255 255 255 255 25	25.55 25.55 25.55 25.55
	1.6	00000	28.1 26.9 26.3 25.9	00000 5055 5044 50	2000 2000 2000 2000 2000	22222
	£.		29.0 26.0 25.7 25.7	nnnna	00000 00000	00000 4444 000000
1	4.1	0000	31.8 27.5 26.2 25.5 25.2	00000 44444 00000	00000 44444 00044	44444
	4.3	60000	00000000000000000000000000000000000000	00000 44444 64801	44444	00000 44400 0000
BET	1.2	00000		8.488 8.488 8.09 7.00 7.00	22222	0.0000 888888 506444
	1 - 1	00000		888888 888888 88886	223.0	00000
	1.0		0000 40000 70000	22233	2222 2222 2222 248 868	22222 22222 22222
	0.0	1	0. 0. 33.0		21.8 21.7 21.6 21.6	ਜਜਜਜਜ
	n . 8	1	00.00.7.7	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	21.0	7000
	-			22.02 20.02 20.03 20.03	199.00	10.7
	0.6			23.3 20.8 19.9	0 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
	0.5				17.8 117.5 117.7 11.7	
	K 1	U 0 T E D	0 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	0000 0000	8 8 8 8 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.94



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =0.95

FIVE-LARNESS WEAVE FABRICS

CORP SAR SAR SAR SAR SAR SAR SAR SAR SAR SAR			1	!			:	BE	i I		1		•		1	1	
A	0.5	9 1		80	1 6 1			1.2	1 1 1	1.4	1.5	1.6	1.7	1.8	1.9	2.0	
ž.	c		, C	_				, c	c	c	c			ċ	•		
_	. 0												0	0	(C)	0	
														0	0,	0	
												0	0			•	
49		0												0	8	00	
	0									•	0	œ	00	80	7.	7.	
	0						9	0	6	60	7	7.	7	7.	7.	7	
	0.	0	0			0	31.1	27.8	26.9	26.7	26.6	26.7	26.8	56.9	27.1	27.2	
	0					~	•	5	Š	3	•	9	•	•	•	7	
	0		0	33.7		25.1	Š	5	5	5	5	•	•	9	9	ò.	
0.00		ċ	00	4	4	4	4	4	4	•	8	5	.0	8	9	9	
1 ~		R.	2	2	6	3	P)	4	4	S.	R.	5	•	•	•		
	2		21.6	22.1	22.7	23.2	150	24.5	24.6		25.3	25.7	26.0	26.2	26.5	26.7	
	•	0	1	*	2	3	M)	4	+	4	K	5	Š	•	•	6.	
		19.7	•	+	•	2		3	4	4	3	5	L (1	ø	•	9	
30	80	0	0		2	2	P)	m	4	4	5	R.	r.	•	•	•	
	~	0	Ü		1	2		כא	4	4	W.	S	S.	9	9	•	
	′	00	0	•	7	2	m	~	4	4	R .	5	iv.	Ü	•	6.	
	~	a C	20.0	-	-	2	3	23.8	4	24.7	•	25.5	25.8	26.1	26.4	26.6	
4 8	17.3	18.8	•		21.8	22.5	23.2	2		•	S	5	ج	•	9	9	
	7	α	0	<u>-</u>	-	2	M.	M.	4	4	r.	7	5	•	.0	9	
	. ~					, (, , M	, P			·	ı	·	4	4	4	
		. a	. 0		• •		. M	מא כ	4	4	· rc	, 5	, rc	9	9		
. 60 . E	17.1	18.0	19.8	20.8	21.7	22.5	23.1	23.7	24.2	24.7	25.1	25.4	25.8	26.1	26.4	56.6	
39	'	x	6	0	-	2	3	3.	4	4		5.	S.		9	Ġ.	

MAXIMUM FILLING COVER FACTORS 1K2! IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.96

		! !		ì		1	1	8E7			1		1			
A TO I	0.5	\$	0.7	8	0 1	1 H	ਜ :	1.2	1.3	4 . 1	7.5	1.6	1.7	1.8	0	2.0
2	<u>.</u>	c.	Ċ	·	0	0	c									0
7																•
17															C	•
· 00												> C	•			
6	. 0	 o c										40.0	31.5	29.9	29,3	28.9
ÜĆ					0				C	0	6	•	60	60	00	80
21					0	0	0	0	0	80	7	7	7.	١,-	7	7.
2						0	M	00	7	9		9	7	7		7
0					0	00	\$	9	9	9	•	•	9	9	7	7
24	0	С	U	0	26.5	25.4	25.5	25.3	25.5	25.7	25.9	26.2	26.4	26.7	26.9	27.1
r u				4	4	4	4	4	Z.	ď	V.	<	· ·	<	4	7
, .c			, ,		M.	M	4	4	4	5	, r	, L	•	· · ·	•	9
, C	4	_	-	~	2	2	اران د	4	4	S		5	9	•	9	9
00	0	c	٠,		2	8	3	4	4	S.	1	3	9	9	9	9
5.	18.9	19.9	20.8	21.6	22.3	23.0	23.5	24.1	24.5	25.0	25.4	25.7	26.0	26.3		26.8
3.0	ac.	0			(V	~	1 00	4	4	4	5	r.	9	•	•	. 9
31	,	0	0	+	'n	·	٠ س	3	4	4	٠.	υ.	. 9	. 9	9	•
32	<i>'</i>	6	C		2	2	23.4	23.9	24.4	24.9		25.6		26.3	26.5	9
33	'	œ	_	•	1.	3	8	8	4	4	Γ.	5	5	. 0	9	
34		18.9	<u>-</u>	21.0		22.6	•	3	•	4		Z,		9	9	26.8
5		œ	20.0			•	8	M)	4	4	r.	5.	5	÷	Š	9
36	7.	α	-	-	1	~	~	3	4	4	σ.	5.	5.	. 9	•	. 9
37	,	œ.	0		•	2	23.2	M ;	24.3	4	r	25.6	u":		26.5	
X	'	ac	6	-	+	ċ	*	8	4	₹ }	5	5.	٦.	Ŷ.	\$. 9
62		18.7	9	20.9			٠	23.8	•	24.8	25.2	5.	25.9		•	26.8



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK BENSITY = 0.97

			1	1				9ET	1 1 1	1		1	1	•	•	:
4 m	0.5	ς.	0.7	60.0	6.0	0 5	+	1.2	1.3	1.4	1.5	1.6	+	1.8		2.0
, ic				· -) (-	, c		ć	0			0	
9										. 0		. 0	0	0	0	0.
															:	0.
													·	0		
	0	·	0.	0	0.			0							•	•
		E	c C	0	0			•	0	0	•-	6	œ	00	60	ď
							•	•	2	6	60	7		7.	-	7.
						0	6	œ	7	•	7	27.1	27.2	27.3	27.4	27.5
						6	7	è	•	. 9	9	9	9	7	7	7 .
~	0	·	٥.	0.	27.2	25.8	25.5	25.5		5		9	9	9	7.	7.
		•		r.	4	4	4	5	70	S	r.	•	9	•	•	7.
י ני		-	, M	. 1	M.	P	4	4	R.	5	r.	6	9	9	9	7
	a c		S	2	M	23.5	-	-	4	25.3	25.6	26.0	26.3	26.5	26.8	27.0
	-		-	2	0	3	M)	4	4	5	5	5	•	•	•	7
	19.2	20.0	•	21.7	22.5	3.				•	•	5	9	•	•	7.
30	÷	0	_	•	2	M	100	4	4	r.	R.	5	. 9	9	9	~
	ж •	6	-	-	2	C)	3	4	4	5	5	S.	9	9	•	9
	1	19.2	0	21.3	2	22.8	23.5	24.0	24.5	25.0	25.4	25.8	26.1	26.4	26.7	56.9
	7	•	c	ر	5	2	₩.	4	4	5	R.	'n	9	•	•	•
	17.5	•	•	•	•	ċ	3	4	4	3	5	K,	•	•	9	9
	7	a.	c.	•	8	N.	3	4	4	4	5	5	•	•	9	9
		α.	-	•	2	2	3	4	4	4	5	5	9	ç	Ś	•
37	17.4	14.8	20.02	21.1	22.0	22.7	23.4	24.0	24.5	24.9	25.3	25.7	26.1	26.4	26.	56.9
	~	α.	ċ	1.	;	2	· •	3	4	4	Š	5	9	9	9	9
	~	œ.	ċ	• •-	;	Ċ.	~ ⊃	3	4	4	r.	٠ د	9	٠.	.	÷

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.98

+ 0	2.0	0	•	31.8	•	00	8	7	7	7	7.	7	7	7	7	7	7	7.	7	7		7	7	7	7
1	5 •	•		4.7 3	6.	•	6.	7.5 2	ņ	.2	٠.	c.	6.9 2	0.	•	«	6 0	80	6.8 2	•	œ	ထ	æ	6.8 2	œ
1	က္			. ·	.3 2	.8	.9	. 4	.2 2	.0 2	.8	.7 2	.7 2	.6 2	.6	.6 2	.6 2	.5 2	.5 2	.5	.5 2	.5.2	.5.2	.5 2	.5 2
	1 (1	0	0	M	2	~	121	N	N	2	N	~	~	30	~	CU	Ň		N	N	~	~	26	~
		•				0	8	27.3	7.	ė	9	. 9	9	9		9	ý	•	9		9	9	ò	26.2	ç
	1.6	. 0				0.	8	27.3	9	•	•	Ø	25.1		•	5	5	5	25.9	Ŋ.	δ.	S.	S.	25.8	٠.
	1.5				c	2.8	8.6	27.3	6.7	6.3	6.0	5.9	5.8	5.7	25.6	5.6	5.6	5.5	5.5	Ŋ	5.5	5.5	5.5	25.5	5.5
1	1.4	.0				0.	6	51.5	•	9	25.7	5	5	5	5	5	3	S.	25.1	5	5	5.	٠.	25.1	
l	+ + 1 + + 1	0				0	٠ ريا	28.0	•	5	5	5	25.0	4	4	4	च	44	4		4	4	4	24.6	4
RET	1.2	•		. 0	0		Ů,	59.6	•	5	Ŋ.	4	24.6	4	4	4	4	4		4	4	4	4	24.1	4
	1.1				٠ د			0		Š	4	4	4	4	23.8	•	10	3	3	M	80	M	٠. د	23.5	~
	10.1	•						0		•	24.8	4	3	3	»>>	23.1	3	3	è	2	2	3	·	25.8	\sim
1	6.0	9.			0.	0			0	28.1	4	~	2	2	•	5	ċ	2	ò		2	'n	2		O.
1	(S)	· -				0						*	•	5	*		•	-	•	+		+	• •→	21.5	•
	,			· -		٥.					0	4	5	•	21.1	0	·	9	\subset	•	٦.	ċ	Ċ	20.1	· -
	9.0	-		· ·		<u>.</u>						ċ	$\dot{\sim}$	<u>.</u>		•	•	÷	6	16.1	o	()·	ac ·	18.0	œ.
(را د د د د د د د د د د د د د د د د د د د	0		• • • •		0.				0.				• 		ж ж	œ	ه ح	7			•	•	1/.4	•
	4 - 1	15				20															35				

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.99

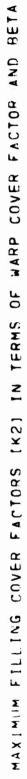
WARP

元 田 シ こ っ て								BET								•	•
- AC - C - C - C - C - C - C - C - C - C			7.0	1 00	0.0	1.0	1.1	1.2	. M		4.5	1.6	1.7	1.8	1.9	2.0	•
1 1 †	1	1 1	l 	l i	1	6 6 1	i 1 1	! ! !	1 5 1	l l l	t 1 1	l l l					
													C	0	c·	0	
															·	0	
													0	C		•	
	Ċ	· c		0	n	9.	c.	.0		• 0	c c		34.5		0	6	
		c	<u>.</u>				0	0	0		4	0	0	6	00	an.	
										0	œ	σο.	00	80	8	8	
						-	0		60	7	7	7.	7.	7	7.	7.	
						4	ac.	~	9	•	٠,	7.	-	•	27.5	7.	
	Û	· c		9.	29.5	26.6	26.0	26.0	26.1	26.2	26.5		•	27.1	7.	•	
25	0		C	•	3	5	ic.	in.	r.	3.	9	9	•	7	7.	7	
		<u>-</u>	2	4	4	4	4	ıv.	5	3	. 9	6.	9	9	7.	7	
		۳.	~	2		3	24.3	24.8	5	25.6	25.9	9	26.5	26.8	27.1		
	-	+	-	2	3	~	4	4	5.	5	5	9		•	7	7.	
	19.7	20.4	21.2	22.0		3	4	4	25.0	'n	'n	26.1	•	•	7.	7	
	X.	0	·		~	•	~	4	4	S.	5	6	•	9	7	7.	
	x	0	\subset	4-4	22.5	3	23.3	24.3	24.8	25.3	25.7	26.1	26.4	26.7	27.0	27.2	
	x	0	=	,	~	3	8	4	4	5.	r.	9	\$	•	7	7	
	,	0	-	• •	ò	٠ س	₩,	4	4	5.	ۍ.	•	÷.	9	Ś	7	
	17.H	19.2	70.4	21.4	ċ	· (M	~	4	4	5	χ.	ò	, o	•	•	/	
	•	0		• 	∾.	3	* ;	4	4	r.	r.	•	•	9	9	7.	
	\	6	-	*	2	3.	*	4	4	r.	ĸ.	6	9	9	•	7.	
	17.4	10.0		21.3	22.2	22.9	23.6	24.5	24.7	25.5	25.6	26.0	26.3	26.5	56.9	27.2	
	'	0	_	+	8	ς.	3.	4	4	5	'n	•	•	9		7	
		o	<u>-</u>		~	2	۳,	4	4	۶.	'n	9	Ś	ç	•	7.	

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =1.00

								BET	(;	i		1
4 ~ 7 ★	0.5		0.7	1 6	0.9	1 0 0	1:1		PO • • 	1 1 1	1.5	1.6	1.7	00 1	1.9	2.0
1 1 1 :	 	l 1	1	1 1 -) 	 	l I	1 1 0 (•	
															0	•
		٠ ت	٦.	0	0			0	0	0	0	0	0	ů,	39.4	3
19	ο,	C	Ů.	0.		С	0	0.	0.	0.	,	0.			0	
										•	4	-	0	6		œ
									• (, ,	0	00	Œ	•	•	00
					•			•	o a	•		, ,		, ,) ox
						> c	• ο α	1 -		. ~						,
	• • • •				30.7	27.0	26.3	26.2	26.3	4.90	26.6	26.8	27.1	27.3	27.5	27.7
J								1								
			•	1		25.3	25.3	25.5	8.52	26.1	26.4	56.6	56.9	27.1	27.4	27.6
		Ė	5	4	4	4	4	5	5	υ.	•	•	•		7	7.
		23.9	23.0	23.2		4	4	4	د	ς.	9	•	9	7	7	7
	2	ڼ	5	2	3	, M	4	4	'n	S.	÷	٠.	•		7.	7.
	19.9	C	·	<u>۰</u>	5	3	7	4	5	ľ.	5	9	,	9	7.	7.
ço M	·	c.	ب سپ	•	C1	3	4	4	ď.	Ď.	R.	9	•	.0	7	7
		10.8	20.0	21.8	22.6	23.3	23.9	24.5	25.0	25.4	25.8	26.2	26.5	26.8	27.1	
	8	•	ċ	•	~	3.	8	4	4	5	S.	9	9	•	7	7
	r	0	_	• سم.	ò	3	3	4	4	5	5	9	9	9	7.	7
	-	٠ 5	•	•	8	10	3	4	4	S.	'n	•	. 9	•	7	7
		C	_	-	C	~	~	4	4	u	ľ	•	~	·	7	7
	•	,	•	•	. (•) r)	•	•	٠,	•	•	•	•	. ,	. r
	•	•	<u>.</u>	•	· ·	۵.	÷. 1	4	4	٠,	٠.	ė.	ć.	0	•	
	11.7	19.1	2 . 4	21.4	22.3	23.1	23.7	24.3	24.8	25.3	25.7	26.1	26.5	26.8	27.1	27.3
	•	•	<u>-</u>	-	٠,	\$	• No 1	4	4	ζ,	r :	ø.	ç	•	· /	,
	•	·	·	•	2	*;	*	4	•	Š		ò	•	ó	•	•



YARN BULK DENSITY = 1.36

1 1	2.0		•	ю •	S.	4.0	3	5	٠ د	ċ	ċ	2	~	ò	?	· 2	ò	+		+	—	-4	• •−1	<u>.</u>	1.9	-	+-1
1	6) 	•	9.	~	1.3 3	m	00	יט	2	.13	0.	80	80	•	.7	7.	9.	9.	9.	6 3	•	•	S.	. 6 3	9.	ç
,	9) 		4	M	8 34	M	M	M	M	8 32	3		M	4 31	M	M	(4)	M	M	3 31	M	M	M	2 31	2	M
1	→) (•	0	8	34.8	~	~	2	٥.	31.8	-	+	-	31.4	+	+		+	÷	71.	+	-	H		•	·
8 (1.7	 		0	0	35.8	3	8	2	+	31.6	+	-	-	31.1		+	•	<u>.</u>	0	30.6	٠ ن	0	0	30.9	ċ	<u>.</u>
	1.6	1	•	•	0	38,5	4	2	'n		31.3	.	0	0	30.7	0	0	0	0	O	30.5	0	0	0	30.5	0	с С
I	1.5	1			•	. 0	7	3.2	2.1	1.4	31.0	n.8	9.0	4.0	0.3	0.3	.2	2.0	n.1	0.1	-	0 . 1	0.	0.0	30.05	0.0	0.0
1	1.4	1 1 t				0	41.4	4	2	-	30.8	0	0	0	59.9	6	6	6	6	6	9.62	6	6	6	56.6	6	6
	1.3	1 8 1					0	9	?	*	30.6	0	0	6	29.4	0	6	6	•	•	29.1	ò	6	6	29.0	6	6
8ET	1.2	!				0		•	4	-	30.5	6	6	6	28.9	80	œ	œ	8	œ	28.5	œ	œ	ac.	28.4	œ	œ
1	1.1	1 1 1					<u>د</u>		0	~	30.7	•	0	80	28.4	œ	6 0	œ	7.	7.	27.8	7	7.	7	27.7	7.	7
	1.0	•					0		0.	6	-	29.7	10	60	27.8	~	7.	7.	7.	7	27.0	7	.'	9	6.90	·	ć
	•	!		0	0	0	0.	0	0	٠.	S	C	28.6	7	/	9	0	•	9	8	Æ		S	•		S	8
	9.6	! !					0				C	33.7	0	,	6	Ś	25.8	r.	5.	7.	ιc.	25.1	30	S	25.0	ic	5
	0.7	1					ů.	<u>.</u>				·	\sim	7	C	٠.	24.9	4	4	4	24.0	4	M,	M,	23.6	·	۲,
	9.0	1					<u>.</u>					د		-	\$	4	53.9	M	M	~		3	0	~	4.17	~	· .
	0.0	† 					.					0		0	19	4	25.0		-	1			ċ	<u>.</u>	20.0	=	·
	★ ← ↑		000	21	22	. €.	4	25	96	75	96	00	0 %	3.1	3.5	33	3.4	35	36	37	€.	65	4 0	41	4	43	4 4



MAXIMUM FILLING COVER FACTOPS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =1.48

	1		1	1	1	1	1	0C 1	1	1	1	1		1		i ! •	:
. ج ۲		9.1		8 : 1	6 • 0	10.11	1.1	1.2	1.3	1.4	4.5	1.6	1.7	1.8	1.9	2 . 0	1
1 1 1 C	:		c) C				c	c	c	c	c	_	ć	Ċ	
															•		
															4	•	
			· .										48.7	39.5	37.6	36.7	
0.4					0	0		0	.0			40.1	7.	•	5	5	
									c	4	7	5	5	4	4	4	
								•	0	5	4	4	4	4	4	•	
									34.5	33.8	33.6	33.5	33.6	33.7	6.8	34.1	
						7		•	2	5	~	~	3	5	5	3	
000	0	0	0	0	42.3	33.5		5	2	2	2	2	8	3	5	5	
C P				-	~	**		+			2	2	2	3	5	10	
					0	0	0	0	•	74	•	8	2	2	3	3	
	. 0	· c	29.8	29.0	26.5	29.6	30.0	30.5	31.0	31.4	31.8	32.2	32.5	32.9	33.2	33.5	
		oc.	7	60	8	6	•	0	0	**	+	2	~	ò	3	٠,	
4	27.3		è	7	•	r	0	0	0	-1	-	5	·	5	5	3	
	4	5	•	7	7	œ	0	0	0	-	•	ò	8	2	P)	3	
	23.5	24.7	25.8	9.96	27.7	28.5	29.5	6.66	30.5	31.0	31.5	31.8	32.3	32.7	33.0	33.3	
	~	4	5	\$	7.	8	0	0	0	0	•	+	5	3	2	3	
	~	4	5	÷	7	œ.	•	6	0	0	• •	*	۶.	٠ د	~	m	
39	$\stackrel{\cdot}{\sim}$	w.	3.	ċ	7	8	6	6	ċ	0	+7	·	٠.	5	M	, כא	
		~ :	5.	×c	7	σc	•	Š	0	ů	•	·	o,	8	3	3	
	-	~	5.	÷	7.	8	6	•	ċ	0	H		<u>٠</u>	?	~	3	
	•	•	4	·	7	ос •	œ.	•	0	0	-		?	ċ	2	٠ رم	
43	21.6	4.57	24.9	26.1	27.2	28.1	28.0	9.62	30.2	30.8	31.3	31,8	32.2	32.6	32.9	33.3	
	•	~	4	•	7.	œ.	oc.	0	ċ				Ċ.		· N	÷,	

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

VARN BULK DENSITY =1.50

								BET						ı		
A X	5.5	9 .	0.7	1 00	0.0	1.0	1.1	1.2	 	 	1.5	1.6	1.7	-	1.9	2.0
 	ł	1 1 1	l l	3	! !	1 1 1	! ! !	• • •	ŀ	! !	t L	! ! !	•) - -	
										0.				0	0	. 0
																0
		· c					ċ	0	ű.		0	0	0		51:3	
												0	0	0	œ	7.
		·	ů	٠ ت	0.	°,	.0		٠.	0.				•	·	5
			c	.					•		ď	•	5	S	5	5
							0	0	41.4	9	35.3	34.8	34.6	34.5	34.6	34.6
							6		•		4	د	3	4	4	4
						=	C	4	3	3.	~	٠ (م	3	رما •	™	4
	·	0		с С	0	34.5	•	~	?	ò	ς.	~	3	3	M	4
							-	•	-	~	C	C.	M)	₩.	(A)	10
			· C							-	. ~	· cu	2	8	3	8
		· c		29.5	0	29.9	30.3	30.8	31.2	31.6	32.0	32.4	32.8	33.1	33.4	33.7
		0	α.	æ	60	6	<u>-</u>	0	₽ -4	+	•	à	2	3	3	3
	28.7			7.	28.4	•	6	0	0	•	•	2	0	'n	3	· (4
35	5.	ų.	ç	7.	60	oc.	6	0	0	7	•	5	~	2	3	(A)
	3.	ر. •	×.	7	7	ac	0	0	0	;	•	CI.	~	8		3.
	3.	4	25.7	9.92	7.	28.6	29.4	30.0	30.6	31.2	31.7	32.1	32.5	32.9	33.2	33.5
	~	4	5	·	7	œ	•	0	٠ ن		-	2	è	ci	3	3
	22.4	74.0	ιι.	\$	27.4	oc	ò	•	0	•	•	oi.	2	2	·	٠ ٣
		~	5	8	1	x.	•	C	0	+4	-	~	ς.	2	8	8
	•	٧.	5.	φ.	7.	æ	0	6	Ċ	-4	-	2	~	ζ,	3	3
	-	3.5	25.1	26.3	7	2 x . 3	29.1	90.6	30.5	31.0	31.5	32.0	32.4	32.8	33.2	33.5
		~	ь ⊔^	•	7.	x.	6	6	ċ	• ~ i	•	5.		?	₩	۵.
	•	۳,	<u>ر</u>	6	7	x.	0	•	ċ	+	•	2	C	٠.	3	رم •



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 1.77

)															(•
[K 1]	0.5	9.0	6.7	0.8	1	0		1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
•		1	Ĺ	ì		.0.			0.		9	•			4	•
	0										•	Ö	0	4	•	0
											· c	4			0	0
											43.0	400	39.0	38.5	38.3	
	. 0							0	5	0	Œ	œ	7	7		7.
56	0	0					<u>-</u>	45.8		•	7.	7	7.	7	7.	
3.0	0	c				•	~	60	•	9	Ś	9	•	•	•	7.
	0					+	•	5	'n.	5	R.	9	9	9	•	7.
	0				0	'n.		4	4	5	35.4	•	9	_	\$	•
	C	_		6	4	3	3	4	4	4	ĸ.	ر ا	'n.		9	•
4	0.	·	41.6	33.6	32.9	33.0			34.1		4	35.3	35.7			36.7
			C	•	_	0	C	~		4	4	ď	u	Ľ	4	ζ,
	•				31.3	•	32.5	33.1	33.7	4	34.7	35.1	35.5	35.9	36.	36.5
	0		0		0	-	N	2	3	4	4	'n	5	เก	9	9
	7	1	œ	0	0	-	2	2	3	4	4	5	5	5	9	9
36	26.0	27.2			0	31.2	5	2	3.		4	4	50	5	•	ô
	r.	•	90	0	0		÷	2	₩.	~	4	4	5	5	9	9
	4		7.	6	0	~ 4	-	2	3	∾	4	4	5	5	•	.9
				28.9	30.0	0	1.	32.5	33.2	33.8		34.8	5	35.7	36.1	16.4
	4	ά.	7	œ	6	0	+	2	3.	~ >	4	4	5	5	9	9
				œ	•	•	31.7	2	M	∾		4		r.	•	•
	<i>د</i> .	3.	,	σc	0	0	•	2	~	۵.	4	4	5	5	•	•
	25.7	75.6	27.2	28.6	29.7	30.8	31.6	32.4	33.1	33.7	34.3	34.8	35.2	35.6	36.0	36.4
	5.	5	7.	c	0.	0	-	?	3	۵.	4	4	5.	5	•	•
69	•	ĸ.	7	ď	6		-	~	5	3	4	4	u.	5.	Ś	9

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 2.00

								9					1			ı
A	: : : : : : : : : : : : : : : : : : :		0.	8 .	0	1.0	1.1	1.2	F	1 4		9.1	1.7	1 00 1	1	2.0
40		6			i •	0	• C	. 0	•	0		•	0	0		ů.
25														0	0	
90													•	60	9	4
70									0	0	c	0	49.2	44.6	43.0	42.3
30.0										0	c		6	2	÷	-4
60	. 0	·		· c									•	0	0	0
30			· ~		0			0	œ	2	c	5	0	0	•	0
3.1							Ċ	S	+	6	0	0	6	6	0	6
32	.0					0	44.2	40.0	39.0	38.6	38.8	33.7	38.8	39.0	39.2	39.5
33					•		0	œ	7.	7.	ά	8	o C	8	6	6
W. 4		د			42.7	60	7.	7 .	7.	7.	7.	7	œ	œ	œ	6
35			C	*	7	٠,	•	•	9	7	7	7	a O	00	60	0
36			0	9	3	S.	S.	5	\$	9	7	7	7	5	ď	6
3.7		· c	\mathcal{L}	34.0		34.5	35.0	35.5	36.0	36.5	37.0	37.4	37.8	38.2	38.6	38.9
82	C	7	~	ċ	3	4	4	ι.	5.	•	Š	۲.	7	œ	a n	ô
0	35.4	51.5	31.6	•		•	4	S.	5	9	·	7	7.	œ	œ	a)
. 4	.=	· =	Ċ	•	C)	~)	4	4	5	•	ć	7	7	80	œ	φ.
41	τ.		30.3	31.4	32.4	33.3	34.1	34.8	35.5	36.1	36.6	37.1	37.6	38.0	38.4	33.8
42		L	6	•	د	∞	4	4	5	•	ç	7.	7.	о ЭС	œ	Ө
4 (4	ç	œ.	•	<u>-</u>	5	3	3	4	J.	•	ý	7	7	œ	ď	œ
4	•		6	-	•	ò	8	4	5	5	ç	7.	7	7	œ	80
45	'n	7	•	<u>_</u>	-4	~	2	4 ,	Š	Ś	•	7	7	7	αc	8
	3.	,	ż	· _	+	?		4	5.	3	8	7	7	7.	20	· &
	•	71.4	29,1	30.5	31.7	32.8	33.7	34.5	35.2	35.9	36.4	37.0	37.5	37.9	38.3	36.7
	٠ •	7.	·	· C	-	Ċ.	~;	4	5	υ,	ż	7	7.	7	oc.	œ

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =2.36

FOOVER I TAIL	0 1			0 1	6.	1.0	 	BETA 1.2	11.	4		1.6	1.7	1 00 1	6	101	101
0000 0000 0000	0.000												0. 0. 0. 0. 65.7	50.0	533.	00004	₽ ← ₽
10 10 10 10 10 10 10 10 10 10 10 10 10 1	••••						03330	00004	0 0 0 4 4 0 0 0 0 W	0 4 4 4 0 0 4 5 E V 3	0 1 2 4 4 4 6 5 6 5 6 6 6 6 6 6 6 6 6 6 6 6 6	04444 40489 40704	4 4 4 4 4	4444 64 W W W 4 V V H O	4444 74 4 4 4 4 10 4 4 7 7 8	04444 04696	HMPMO
10 0 K 8 0 10 10 K 8 0 10 K 8				000 4 % 000 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 4 4 W 0 0 0 0 C 0 0 C C C C C C C C C C C C C	0 4 4 8 8 0 7 4 9 8 0 7 9 8	4 4 4 W W 0 0 0 0 0 0 0 0 0 0	44488 9400 94440	4 4 4 W W 0 0 0 0 0 0 0 0 0 4	7.14 7.10 7.04 3.00 3.00	44444 44660 70004	4 4 4 4 4 6	4 4 4 4 4 0 4 4 4 4 4 6 7 4 6	24444 201111 201111	4444 00000 04010	4444	0 r n 4 m
4 4 4 4 0 4 0 M 4	0 0 0.68 0.04 0.04 4	59.8 55.0 53.1	3.50 3.40 3.80 3.80 4.80	K K K K K K K K K K K K K K K K K K K	8886 886 886 886 886 886 886 886 886 88	37.6 3.6.7 3.6.2	38.1 37.7 37.5 37.3	8 8 8 8 8 8 8 9 7 8 9 9 9 9 9 9 9 9 9 9	39.2 39.0 38.8 38.7	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	444 W W C C C C C C C C C C C C C C C C	0444 000 000 000 000 000 000 000 000 00	4 4 4 4 4 4 4 4 4 4 0 0 0 0 0 0 0 0 0 0	4 4 4 4 4 4 4 4 4 4 6 6 7 4 8 8	4 4 4 4 4 4 4 4 4 4 9 9 8 8 7	4 - 4 4 4	
4 4 4 4 4 7 0 V 30 0	2000 2000 2000 2000 2000 2000 2000 200	4, 18 80.08 80.08 80.08	2000 2000 2000 2000 2000 2000 2000 200	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	00000000000000000000000000000000000000	36.1 35.9 35.8 35.8	34.4 34.7 34.7	37.7 37.6 37.6	888888 88888 84488 86888	39.2 39.1 39.1 39.0	30.7 30.7 30.7 30.7	2.04 2.04 2.04 2.04 2.04	8.04 8.04 7.04 7.04	£ 1.14 2.114 5.114 5.117	7	4444	44400



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =2.50

3	0 !		•	•	•	•	•	5.3	•	•	•	•	•	6.5	4	•	•	•	3.5	•	3	•	•	٠. د	•	•
•	9 6	1	0	0	ð		4	7 46	4	4	4	4	4	6 43	*	4	4	₹	1 43	4	4	*	4	9 43	4	* †
] ! i	- I	•		6	0	•	00	48.	3.	4	4	4	*	43.	M	m	8	3	4	3	8	3	ċ	42.	· ·	`
1	1			0			0	47.5	S.	S.	4	∾.	8	43.3	5	m	ò	2	42.7	ci	ċ	~	ċ	45.8	٠.	•
1	1.7	 • •		c			00	49.5	9	S.	4	₩)	M	43.0	à	$\hat{\sim}$	\sim	2	45.2	(J)	٠ «	5	\sim	42.0	·	·
1 	1.6) 		0			0	4.5	7.	S.	4	8	3	42.7	2	8	2	+	41.3		+	·		41.5	~ ~-1 ·	
	1.5	 					•	٠.	æ	4.3	4.9	3.7	3.0	42.5	2.1	1.8	1.6	1.4	41.3	1.2	1.1	1.0	6.0	40.0	0	ж С
; ;	4	; ; ; c		0				0	0		5	4	3.	42.3	-	+	+	0	40.7	0	0	0.	ů.	40.3	0	0
	1.3			0				0		•		u)	64)	42.2	<u>.</u>	÷	0	0	40.1	0	6	•	ó	30.6	6	Ć
ar m	1.2	; c				0.		0				ت	4	45.4	+	0	0	6	36.8	٥,	6	6	œ	38.8	œ	œ
!	1.1							ů.				•	7	43.4	.	ċ	0	6	38.9	œ	œ	a	£	3 P. J	7	7
1.1	1.0	1 .									0.		•	47.2	•	0	6	œ	38.5	7.	7	7	7	37.0	0	Ċ
	0.0	; =				0.	0.					0		•	7		0	8		7	•	9	ç	•	ر. دی	·.
	0.8						0				0 °			0			***	œ	37.3	4	5.		S.		₹	4
	0.7										0.	c		c				-	37.6	٠ س	4	4	8	33.4	~ .	٠,
	\(\cup \)	1 c				·					c			C				<u></u>	~	÷	54.5		0	52.0	<u>.</u>	
		i 2				0	9.	6								0.					36.4			36.1	ъ.	·
	4 7 3 X	. C.	20	70	8 %	60	30	31	32	33	34	340	1	27	3.8	39	4				4	4				

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 2.75

								LL:				1		i		4
K C C C C C C C C C		\chi		60		1.0	1.1		1.3	1 to 1	1.5	1.6	1.7	80	6 1	2.0
ı L	1	1) C)	1)) •)) (1	l I j		1	, c		•	
					•											
					0											
	0	·	0	0.	0	с.	٠ ن	0	0.		0	0.	0.	•	0	0.
59	0	. 0	ċ	c.	0.	0					_			-		
														•	0	4
		C			0									9	2	0
													4	+	6	•
		· c			0	0	ć	0	0	0	-1	52.7	50.0	48.9	48.4	48.1
3.4	0.	0.	0	·	٥.	0.		0.			51.4	0	80	7.	7	_
is in		ć		·	0			•		0	œ	7	7	•	•	7
					· c				0	1	~	•	•	•	×	4
		· ·				• •	82.3	48.8	46.6	45.8	45.6	45.6	45.7	45.9	46.1	4.0
					0		•	5	5	4	4	5,	ec.	5	5	•
39	0	c c			0		5	4	4	4	4	4.	r.	رى	3	•
					œ	4	3	8	3	۲)	4	4	4	3	5	5
	о С	C	.	•	43.6	42.5	45.4	42.6	43.0	43.4	43.8	44.2	44.7	45.1	45.4	45.8
					+	+	+	0	2	^ر .	3	4.	4.	4	r.	5
			M	-	0	<u> </u>	.	+	ċ	~	~	۵.	4	4	ŗ.	5.
4		46.1	•	6	6	0	c,	+	ć	5	3	3	4	4	5.	ů.
		σc	7	œ	80	0	c	+	÷	2	M	3.	4	4	ŗ.	5
	5	·	ď.	7	œ	6	c)	1.	•	2	3	3	4	4	ۍ.	10
74	35.0	35.1	36.1	37.1	38.2	39.2	40.1	40.9	41.7	45.4	43.0	43.6	44.1	44.6	45.1	45.5
	~,	4	5	•	œ	6	ċ	0	÷	2		3.	4	4	r.	5.
		, ·	٦.	·	7	œ	0	ċ	÷	~	`	٠ <u>٠</u>	4	4	5	r.



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =2.95

		1	0.0				1	9E		1	1	1 1 1	!	1	1	í
4 m		9.0	0.7	0 0	6.0	1.0	+	1.2		1 . 4	1.5	1.6	1.7	4 : 8		2.0
 	 	 	1) (1	 C)) C		_	· c	_	c	
															,	
														-	•	0
													0	•	4	2
						0	C	0	0		C	0	57.4	53.4	51.8	51.1
		c	° u	n.	0.	0.	0.	0.					ċ		į	0
	c	c			c						4	,		0	0	6
									0	3	0	6	00	œ	œ	80
									2	6	ac	00	ආ	8	60	00
								~	•	47.9	47.5	47.4	47.5	47.7	47.9	48.1
	0	0.	0.	<u>-</u>		0	52.4	48.3	~	9	·¢	9	7.	7	7.	7
				c		۲	_	4	ý	4	40	9	\$	7	7	7
						7	· L	, L	, r	5	T.	9	6	9		7.
					9	44.7	44.3	4.4	44.7	45.1	45.5	45.9	46.3	46.7	47.1	47.5
					×	3.	3	3	4	4	5	r.	•	•	7.	7.
	C	c	50.8	43.1		2	2	~	4	4	ς.	5.	9	ý	9	7.
45			$\dot{\sim}$	•	•	•	~	M	M	4	4	Š	r.	•	9	7.
		M ;	_	0	0	+4	?	5	·	4.	4	5.	٠.	•	•	7
	4	0		39.3	•	41.0	41.9	42.7	43.4	44.1	44.7	45.3	45.8	46.3	46.7	47.2
	œ	7	7.	œ	0	0	7	٠ د	M	4	• বা	S.	ن	9	•	•
	35.5	•	7	œ	39.5	0	***	5	3	8	4	Š.	r.	9	•	7.
J.	4	3.	Š	oc.	0,	0	-	8	3	~	4	5	δ.	•	•	
	٠,	4	9	7	0.	0	٠ <u>-</u>	5	3	, M	4	5.	n.	9	•	7.
	32.4	34.3	36.1	37.6	38.9	40.1	41.2	42.1	42.9	43.7	44.4	45.0	45.6	46.1	46.6	47.0
	-	4	r.	7	œ	•	•	è	÷	۵.	4	ς.	S.	ç	è	7
	-	₩,	5	7	œ	0	7.	~	2	~;	4	S.	ر. د	ç	ç	,

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =3.25

MARP COVFR FACTOR	C .	·	7.0	1 00 1	6.0	1.0	1 1 1	BET	₩ ;	4	2	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1.7	1 00 1	1.9	1 0 1
3.0	J			•	· C	0			0							0
				-		0										0
				_		٠.									0	
				0	0.	0		0	ŋ,		. 0	0.	0	0	6.09	57
	ē	.		-				0	0	0					'n	
	U		·								•	0	7	5	3	
										0	7.	9	4	8	?	
	0.			C.	0.	0	0	0	0	67.2	55.7	53.3	52.3	51.8	51.6	51
										5.	~	÷	-		.	
M C	. 0		· -		0.	0.			4	+	C	0	0	٠ د	0	
							0	4	↔	0	0	6	o.	0	6	
	. ()		0	0	0	0	54.5	50.5	40.4	46.0	49.0	49.5	48.4	49.7	50.0	50
					Ð.		6	æ	œ	80	œ	80	6	·	·	
						•	7	7	7	7	·	œ	œ	6	6	
						7	÷	÷		7	7	æ	œ	•	6	
				c	æ		3	•	•	7	7	20	œ	60	•	
	=		7.	•	4		45.1	45.6	46.2	46.8	47.3	6.74	48.4	48.8	40.0	4
		=	3	3	٠ س	4	4	5	9	•	7	7	œ	œ	0,	
		7	c.	2	5	~	4	5	5.	•	7	7	œ	œ	·	
			41.0	4-1		3	4	4	5	•	ċ	7	œ	œ	•	
5.0	3	0	Ċ	-	-1	2	3	4	5	ç	9	7	œ	œ,	6	_
	ď.	α	0	_	1.	~	M	4	5	•	·	۲.	œ	œ	Ġ	-
	ζ.	7.	œ	·	+	⊘i	M.	4	5.	6.	ć	7	· /	ос ЭС	6	0
	35.1	36.7	38.5	30.8	41.1	42.3	43.4	44.3	45.5	46.0	46.7	47.3	47.9	48.4	4 A O	49.
	4	÷	œ	6	C	S.	Μ,	4	5	c	ċ	•		1 0	T.	O.

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

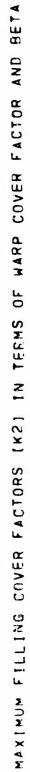
YARN BULK DENSITY =3.54

								in T								6 1 8
A T		9 .	1.1	0	0.0	1.0	1.1	1.2	1.3		1.5	1.6	1,7		0 1	2.0
32	 ~ ~	4		 c	. 0	0				0	• C	0	0	0.0	C	0.
															C	•
			·												0	1,
														•	Ċ	æ
												0	4	0,	7	٠ ن
					0			٠ ت	·	•	C	•	58.1	56.3	55.4	55.0
										4,5		1	5.	4	4	4
39	.0	.	0		0	0	0					4	Ÿ	3	·	3
C	C		_	<u>.</u>				•	0	9	4	رم. د	6	8	رم دم	3
							0	S.	5	3	2	2	~	2	2	2
4					0		•	55.3		5	51.7			52.1	52.4	52.6
						0	Ś	?	+	.	•	4	-	~·	?	5
4	.0	0	0.			56.5		0		50.3	ċ	0		:	;	· ·
	· 6				0	•	0	6	6	6	C	0	·	+	•	· Cu
					51.3	0	48.5	48.6	49.0	40.4	•	50.3	50.8	51.2	51.6	52.0
	E			c,	8	7	7,	œ	ď	6	0		0	+4	-4	÷
			0.		9	ċ	7	7	œ	œ	•	.	Ċ.	-4	•	
	9.		48.0	5.	5.	•	C	7 .	œ	20	ó	6	0	0	÷	+
c: tr	Ξ.	•	4	4	4	S	·	7	7	œ	O	6	Ċ	0	•	~-1
	• ت	. 4	~	~	・す	ĸ.	\$	ć.	7.	œ	0	6	0	0	-	,
	0	4-1-1	41.9	42. R	43.8	44.8	45.8	46.5	47.5	48.2	48.9	49.5	50.1	20.1	51.2	51.6
	=	٠.	•	ς.	نما •	4	ູ້	\$	7	8	σ.	6	0	0	÷	$\dot{\cdot}$
	•	·	C	•	M)	4	5	ç	7.	œ	α:	6	ċ	0.	+	-
		α	=	•	1	4	7.	6	7	80	α	6	<u>-</u>	0	6-4	+
56	3	. T	30.8	41.4	42.8	44.1	45.2	46.2	47.1	47.9	48.7	49.3	50.03	50.5	51.0	51.5

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =3.75

								B E			1	1	1	1	Ģ	1	
A Z	1	9	0.7	•		1.0		1.2		1.4	1.5	1.6	1.7	1 . 0	6 1	2	0 1
 			• C	0 .				0.	0	0	, , , c	•	. 0	0	0	رن	
														0	.	M	₩)
													0	æ	~	6	7
			ė			0			0.	0	č	0		61.0	58.9	57.	3 0
											0		0	60	7	•	7
	.0	c c		ċ	0.			0.				٠ ۍ	7	•	•	S	0
0 7	c.			C				•	0	5	ac.	9	5,	5.	5	5	₩)
							0	0	67.7	58.3	56.0	55.1	54.8	54.7	54.7	54.	80
									8	5	4	۲.	4	4	•	4	Š
							C	80	4	m	3	, M	m	m	M	4	2
	ت.	Ċ	. 0	0	0.	0.		4	3	5	,	e,	3	3	₩.	4	0
		· -	Ċ			•	4	C	2	•	\sim	2	~	3	M)	m	ØC.
		C	c	· c	٥.	3	51.7	51.2	51.2	51.4	51.7	52.1	55.5	52.9	53,3	53.	7
					•	-	0	0	٠ ن	•	*	-4	ċ	3	~	3	9
				œ	C	•	o,	6	ċ	<u>-</u>	•4		~	2	ک	3	J.
	0				œ	48.4	œ	6	0	0	C D		5	'n	· N	3	4
ις O		•	~	7.	7.	7	α	ස •	6	0	c	.	-	٥.	~	3	m
		81.2	47.2	46.1	46.4		47.B	48.5	49.3	50.0	50.6	51.2	51.8	52.3	52.8	53.	M
	\Box	7.	5.	۳.	5	•	7	.	•	•	c.	;	.	·	·	M	2
	5	4	3	4	5	9	7	œ	œ	6	0		;	5	·	3	~
	4 4.	•	٠. •	M	4	•	7.	7	œ	•	ċ	+	÷	\sim	2	٠.	e4
	0	0	~	K	4	5	·c	7	œ	0	c	0	•	8	0	₹.	
56	34.R	40.0	41.5	43.0	44.3	45.6	46.7	47.7	48.6	40.4	50.5	6.04	51.5	52.1	52.6	53.	_
		ó	•	<u>٠</u>	4.	5	•	7.	æ	0	ċ	0	H	2	~	~ ;	0
	ç	œ	c	~	4	ž.	Ċ	۲-	60	•	ċ		•	2	٥.	~	0



YARN BULK DENSITY =4.00

	7 1.8 1.9 2.0	0. 0. 123	0. 78.8 66.	74.8 64.9 62.	63.9 61.3 60.	0.5 59.4 58.	58.7 58.1 57.	3 57.	56.7 56.7 56.	56.1 55.2 56.	55.6 55.8 56.	55.3 55.6 55	55.0 55.3 55.	4.7 55.1 55.	54.6 55.0 55.	54.4 54.8 55.	8 54.3 54.7 55.2	54.2 54.6 55.	54.1 54.6 55.	54.0 54.5 55.	53.9 54.5 54	53.9 54.4 54	53.8 54.4 54.	.8 54.3 54.	53.8 54.5 54.	53.7 54.3 54.
 	1.6 1.	0 . 0	0	0	0. 72.	.3 63.	2.5 59.	59 / 58.	7.4 56.	6.2 56.	5.4 55.	8.8	4.3 54	4.0 54	3.7 54	. 4 53	3 53	3.1 53	3.0 5	2.9 53	2.8 53	2.7 5	2.6 53	6 53	2.5 53	2.5 53
	4 1.5	c				ë.	73.	8 62.0	58.	56.	55.	54.	54.	3 53.6	53.	53.	2 52.7	55.	55.	55.	55.	52.	51.	1 51.9	51.	51.
 		0	0	0	0	.0	0	. 76.	61.	0 58.	7 56.	.5 54.	1 54.	2 53.	5 52.	0 52.	.6 52.	3 51.	0 51.	8 51.	6 51.	5 51.	4 51.	.3 51.	2 51.	1 51.
BETA	1.2 1							0 . 0		0 . 6	.0 5	7.4 5	4.9 5	53.4 53	2.4 5	1.6 5	1.1 5	0.6 5	0.3	0.0	8 2	9.6 5	9.5 5	49.3 50	9.2 5	9.1 5
	1 7 7	! ! .									0	0.9	7.5	54.4	5.6	1.5	.7	0.1	9.6	5.6	6.0	7.8	8.5	48.3	2.5	8.1
						0	0				0		0	58.	54.	51.9	50.	49.	48.	48.	4 8	7.	47.	47	47.	46.
	6 0 8				0						0	0		•	**	•	51.	40	4 8	47.	•	40	46.	•	45.	45.
ı	-	C 	· c	C	c		0	0	0	C		C	0		0	0	ቪ	7 50	4 48	9 47	0 46.	8 45	9 45	3 44.	8 44	4 4 4
	9	1	· C					0		Û.		,		0			·	64	. 5	.9 47		.8 44	.1 43	.0 43.	.2 42	.6 42
	0.5						•					0.0								· .	4	7.7	4.4.4	1.5 4	9.0 4	α. α.
a w (TK10K						0 4						4										ó		60	0

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =4.13

FIVE-HARNESS WEAVE FABRICS

0. 0. 0. 0. 0. 68.8 61.6 59.5 58.5 58.0 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	00000000000000000000000000000000000000	000 000 000 000 000 000 000 000 000 00	6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	$\begin{array}{cccccccccccccccccccccccccccccccccccc$		$\begin{array}{cccccccccccccccccccccccccccccccccccc$
9 40.4 41.8 43.5 45.1 46.5 47.8 49.0 50.0 51.0 51.8 52.6 53.4 54.0 54 0 49.4 41.3 43.1 44.8 46.3 47.6 48.9 49.9 50.9 51.8 52.6 53.3 54.0 54	. 5 47.8 49. . 4 47.6 48.	50.0 51.	51.8 52.	55.4 7 5.3 7 7	. 4	5.2 55.

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =4.60

FIVE-HARNESS WEAVE FABRICS

> C			1							1	1		(•	1	
AC		9	0.7	C		. 0 .		1.2	1.3	1.4	1.5			1.8	1.9	2 0
! ! 00				0 0			0 0	0 .	1 •			1 •		•	•	9
	0.		C										•	•	5	80
					<u>.</u>								C	4	œ	5
											0	. 0	73.9	67.4	65.2	64.0
					0						C		9	4	~	2
					0						•	•	4	ċ	0	5
4 4	• 9	c.	· c	0.	0	0	ċ	0			· c	3	?	+	•	-
									0	•	M	-+	-	0		0
					0	0	0	0	67.3	62.6	61.0	60.4	6.09		60.3	
							-		·	0	0,	6	6	0	•	0
							œ	C	0	•	œ	8	6	6	0	0
Q. 4.	C	ċ		<u>.</u>			63.3	0	œ	•	00	80	oc.		•	6
						5	0	7	7	7	7	00	٠	စ်	0	6
					9	•	7	56.6	56.6	56.9	57.3	57.7	58.1	58.5	59.0	٠
					0	÷	5	5	ċ	•	\$	7	7.	о С	30	6
				7	9	5	4	5.	5	•	ď.	7	7	8	0	6
	<u>.</u>	· c	0	57.2	54.2	53.8	54.1	4	5.	5.	•	-	۲.	œ	6 0	6
				8	2	M	8	4.	4	5	¢	•	7	6 0	90	0
	· C	c	54.0	51.8	51.R	•	53.1	53.9	54.7	55.4	56.1	56.8	57.4	58.0	58.5	26.
		α,	-	<u>-</u>	•	+	ς.	3	4	Š	.	9	۲.	7	œ	٠.
			0	0	0	-	~	3	4	5	5	. 9	۲.	7	œ	œ
49		αC ·	α;	α.	0	•	•	3	4	5.	r.	9	7.	7	o 0	φ 0
	•	Š	7	8	0	c c	2	*	4	4	n,	•	~	7.	æ	00
	4 4 A	45.2	46.5	48.0	49.4	50.7	51.9	52.9	53.9	54.8	55.6	56.4	57.1	57.7	58.3	58.
	~	٠ تا	·	7	·	_	•	ς.	M	4	٦.	•	7	7.	œ	œ



OXFORD

* 1977.7v

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.54

0.10	!	į		1		!	(BET	(; (. (1
XX	0.5	9.6	0.7	. 0	0.0	1.0	1.1	1.2	4.3	1.4	1.5	1.6	1.7	40	1.9	2.0
1 60 0	0	00.		i		1			00		•		ì			
0 H Q B 4				00000	00000		00000			40000	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	M M G G G G	0 0 4 4 4 0 0 0 4 4 4 4 4 4 4 4 4 4 4 4	2 4 4 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	444 00000 00000 040
50000	0. 0. 12.2	0.00.00.00.00.00.00.00.00.00.00.00.00.0	4 4 4 4 6 7 7	00440	290 112.7 10.4	04544 7.444 8.44	45.55 45 45 45 45 45 45 45 45 45 45 45 45 4	120.55 120.55 120.55 120.55	4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	4 4 5 5 6 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	4 M M M M M M M M M M M M M M M M M M M	ままままま 4 まちちち 4 み ア 50 4	44555 74555 74567	44444 30000	4 4 4 4 4 - 5 5 6 6 7	44444 87.054
0 4 0 0 4	80 80 V V V V V V V V V V V V V V V V V	9 8 8 8 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9	66000	0.000	00000 0000 0000 0000	110.01	4 4 4 5 6 6 4 4 5	0.000000000000000000000000000000000000	4 E C C C	22222	00000 00000	4 8 8 8 8 8	##### ###### ######	20000 20000	4444	44444
	22.23	8 8 8 8 8 8 7 4 4 4 4		00000	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	110 110 100 100 100 100 100 100 100 100		######################################	00000 0000 0000 0000	44444 666666 666666	20000 20000	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	4 4 4 4 4 5 5 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6	# # # # # # # # # # # # # # # # # # #	+++++	888888 888888 888888
331	7.2	60 60 60 T T T T	80 80 80 0, 0, 80	900	10.2	10.7 10.7 10.7	111.23	41.7 41.7	122 122 123 143 153	122. 122. 123. 13.	12.9 12.9	13.5	20 10 10 10 10 10 10 10 10 10 10 10 10 10	24 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	नित्त • • • • • •	4 4 4 9 6 6 6



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.56

A																
OVER	i 1	1	1				ı	BET	1	((•	•
Z - 44	0.5	9.0	0.7		6.0	1.0	1:1	-	4.5	4.	•	1.6	1.7	60	1.9	2.0
1 60	0.	0 .	•					0.	0				•		.	•
٥															-	•
																•
															•	0
												•	0	0	r.	0
		0	ė	•	00			0.	0			26.6	19.0	17.7	17.0	16.7
4	5	E									•	•		'n	Ċ	'n
15	0					0	•	7	5	RJ.	4	4	4	80	5	
16				•	•	7	+	4	4	4	4	4	4	*	*	Š
17			•	•	3	ن ا	3	5	3	P)	F	4	4	•	+	+
4-4		•	13.4	12.0	11.9	12.1	12.4	12.6	15.9	13.2	13,5	13.8	14.1	14.3	14.5	4
19	0	11.1	•	0	-	-	2	8	2	, M		, M	•	.	*	4
20	•	•	•	0	0	-	+1	5	2	١٠)	5	M	2	4	4	4
21	•		0	10,2	10.7	11.2	11.7	12.1	12.5	12.9	13.3	13.6	13.9	14.1	14.4	14.6
22	•	•	•	0	0	-	1	è	2	·.	m	3	3	+	*	4
23	E	•	•	•	0	+	•	ċ	5	2	ر ا	2	m	•	4	4
24	7.6	4.	9.5		•	-	•	5	ò	2	·	m	m		4	4
25	•			•	0	•	**	8	8	~		1	5	4	4	4
26	•	•	•	•	0	;	-	ċ	5	2	ы.	M	, M	•	+	4
27	•	•	•	•	0	*	-	?	<u>ن</u>	3	, m	3	M	+	4	•
28	•	9.3	9.1	9.8	10.4	11.0	11.5	11.9	12.4	12,8	13.1	13.5	13.8	14.1	14.3	14.6
58	7.3	•		•	0	;	+	;	5	2	57	m	·	4	4	•
	•	•	•	•	0	0	-1	-	2	2	100	10	3	4	4	4
31	7.3	8.2	0.6	6.7	10.4	10.9	11.5	11.9	12.4	12.8	13.1	13.5	13.8	14.1	14.3	14.6
	•	•	•	•	0	0	+	•	5	2	n	m	2	+	+	4

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.58

1			00 M H H O O O O O O O O O O O O O O O O O	& E C C C C C C C C C C C C C C C C C C	4444	44444	4 4 4
	6		200	€ 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	4444	4 4 4 4 4	4.4.6
	₩. 1.09	66	60000	407.00	4 4 4 4 4	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	4 4 4 W W W
	1.7		12000.	24444 200000000000000000000000000000000	4444	4444	444
1	1.6		0. 0. 17.2	24444 47646	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	143.7	43.7 13.7
	1.5	• •	90000	54455 54455 55467	44444 888888 88884	4 4 4 4 4 8 8 8 8 8 8 4 4 4 4 4	4 4 M
!	4.4	00	32.7	# 4 m m m • • • • • • • • • • • • • • • • • • •	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	44444 88888 90000	13.0
		00		44444 74844 4.086	115 125 125 125 125 125 125 125 125 125	4444	12.6 12.6 12.6
8	1.2	00		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	4444 66666	122.1
	1.1	00		2000 2000 2000 2000	1122.1	111.7	11.7 11.7 11.7
1	0	00	00000	11180 1225 1235 125 125 125 125 125 125 125 125 125 12	44444 44444 78488	22224	
	0.0			005011	1111 11011 1000 1000 1000	44444 0000 0000 00004	10.6 10.6 10.5
•	0.0	•			8 50 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	00000	000
	0.7			4 4	40000	6666	000
	9.0			12.9	10.6 9.0 8.8 8.8	0000000 000000 000444	00 0° 00 4 4 4
	0.5	! ! • •	00000	00000	10.00 00.00 00.00 00.00	7.7.7. 7.0.7.7.	V V V V
d m 6	A F	1 0 0			0 4 0 5 6 6 0 4 0 5 4	00000 00000	



MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

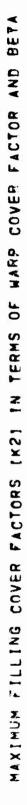
YARN BULK BENSITY = 0.65

								BET								•	,
A X	0.5	0.6	0.7	6.0	0.9	1.0		1.2	• 🗝	प	7	-		60		2.0	
ec 1	•		ı	•		0	1		. 0	1 2	t •	0	0	•		ì	,
ው																	
					.0												
					0										•	.	
M 4		. 0		0			c					00	.00	- 0	25.2	21.2	
					•								•	•	•	3	
15			0					•	0	5		7	7	7.		7.	
16	0		.0	0	0.	•	•	21.5	17.6	16.6	16.2	16.1	16.2	16.2	16.3	16.5	
17								•	5	5	5	5	ĸ.	5	•	•	
•			•	0	9	4	41	4	4	÷	¥	'n	ξ.	5	5		
19					•	3	, m	5	4	4		4	r.	ľ.	r.	5	
02		4	~	2	2	(V	* >	3	m	*	•	4	3	5	5	3	
21	•	10.9	11.1	11.5	12.9	12.4	12,8	13.3	13.7	14.0	14.4	14.7	15.0	15.3	15.6	15.8	
8	•	0		-	-	2	۶.	3	3	m	₹.	4	3	5	·	5	
23	•	•		0	;	ċ	٠ ن	m		m	₩.	4	4	1	5		
4	8.5	•	0	0	+	S	ò		·	9	₹.	4	4	٠	2		
25	•	•	•	0	-	-	2	m		3	4	4		5	5	5	
26	•	•	6	0	+	+	2	8	3	, M)	4	4	4	S.	ı.	S	
27	•	•	9.6	10.6	11.3	11.9	12.4	12.9	13.4	13.8	14.2	14.5	14.9	15.2	15.4	15.7	
a c	•	•	•	0	+	+	2	0	3	3	4	4	4	v.	'n	ľ.	
à	B.n	8.9	_	0	1.	+	0	2	٠ س	m	•	₹	4	w.	5	5	
30	•	•	•	0	+	•	2	8	5	5	4	4	4	5	5	S.	
31	7.9	6.8	4.7	10.5	11.0	11.8	12.4	12.9	13.3	13.7	14.1	14.5	14.8	15.1	15.4	15.7	
	•	•	•	0	1.	-	2	8	E	, M	4	4	4	υ.	5		

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =0.65

0. 111								E					(1		•	
Y Y	0.5	9.0		0	•	4.0	1:1	•	+ H	•	•		1	1.8	6	2.0	
1 60 0		000		00		•	_	•			600	00	00		00	00	
0 A 0 B 7													00000	00000		00000	
															20000	66667	
0 1 0 E 4			7.00 5.00 7.00 7.00 7.00	4 7 % 0 6		00000 0000 0000 0000	2000 2000 2000 2000	94505 94505	44444 88888 9869	44444 80400	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	4444	115.11	សស្តាត្រ ស្តាស់ ស្នង។ ម៉ា	80 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	44444 65665 6666	
		00000 WW100	00000	1000 1000 1000 1000	44000	1122 1122 1122 123 123 123 123 123 123 1	1122 122 122 123 135 136	40000 40000	111111 111111 111111111111111111111111	44444 66666	888888 888888 888888	44444 7.0000	1175.00 1175.00 1175.00	44444 44444 44444	44444 550000 50000	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
30 32	00 00 00 	000	0 0 0 0 0 0	\$ 9 9 4 0 0 4 0 0	111 111 111 111	######################################	12.5 12.5 12.4	13.0 13.0	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	444 800	444	0.44 0.9.0	15.3	45.0 45.0 45.0 75.0	17.17.17.15.00 00.00	



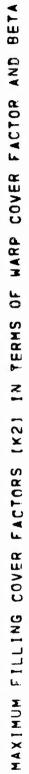
YARN BULK DENSITY = 0.67

₩ C	() ()		1		1			E	(1 1	Ĺ
« —	0.5	9.0	0.7	0 . 0	6.0	1.0	.	1.2	-	4	1.5	1.6	1.7	(C) (स्त्री (2.0	
000	0 0		i	•	-			•			000	00.	000	00	00		
															•		
													=			5 M	
4	00												23.6	20.3	19.2	18.6	
	0									•	6	60	~	7		1	
									0		6	9	9	40	9	9	
	0				0		18.5	16.5	15.9	15.7	15.8	15.9	16.3	16.2	16.3	16.5	
					6		4	4	4	5	K	5	5	4	9	9	
40				15.4		9	3	4	4	4	+	5	ľ.	5	•	•	
		•	2	0	8	ю.	ю. •	M	4	4	4	5	5	10	5	•	
	7	•	+	+	ò	2	3	5	3	+	4	ů.		5	5	9	
			10.9	11.4	11.9	12.4	12.9	13.4	13.8	14.2	14.5	14.9	15.5	15.5	15.8	16.0	
	•	•	6	·	7	è	cu.	9	3	4	4	4	5	5		•	
4	8.7		0	•	•	5	è	3	M	4	4	4		ľ.	S.	9	
25	•	•	0	0	 -4	60	N	10	м.	4	4	4	5.	r.	r.	vo.	
	•	•	0	0	٠,	2	2	, M	5	4	4	4	S.	ŝ	iv.	•	
	•	•	j.	0	+	~	2	3	3	4	*	4	5	'n	5	•	
	•	•	•		-1	12.0	12.6	13.1	13.6	14.0	14.4	14.7	15.1	15.4	15.7	16.0	
56	8.1	9.1	0	-	11.4	6	5	ы.	5	.	4	4	'n	ŝ		5	
	•	•	•	0	+	2	2	1 0	3	4	•	4	K.	S	5	5	
31	8.0	0.6	6.6	10.7	11.4	12.0	12.5	13.4	13.5	14.0	14.4	14.7	15.1	15.4	15.7	15.9	
	•	•			+	2	2	ь.	3	4	4	4	5.	5	٠.	S.	

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.68

	1.8 1.9	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0. 0. 0. 0. 0. 0. 0. 0. 25.1 21.1 19.7 19.0	17.9 17.7 17.6 16.8 16.9 17.0 16.3 16.5 16.7 16.0 16.3 16.5 15.9 16.1 16.3	15.8 16.0 16.3 15.7 15.9 16.2 15.6 15.9 16.2 15.6 15.9 16.1 15.6 15.8 16.1	15.5 15.8 16.1 15.5 15.8 16.1 15.5 15.8 16.1 15.5 15.8 16.1	15.5 15.8 16.1 15.5 15.8 16.1 15.5 15.8 16.1
1	- 1		26.2	44444 600000 000000	2100 2100 2100 2100 2100 2100 2100 2100	15.00.00	15.2
1 1	-	00	00000	44444 94444 94466	44444 5656	44444	4 4 4
1	-	60	00000	21 21 21 21 21 21 21 21 21 21 21 21 21 2	4444	44444 0.0000	444
1		00	00000	2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	4444		444
	-	00	00000	000 400 400 400 100 100	4 4 M M M 4 4 M M M 4 4 M M M	88888 88888 88888	44.64 6.66
80	1		00000	17.0 15.0	44444 88888 89648	**************************************	443.2
	+	1	00000	00004 4 NG 0	2000 2000 2000 2000 2000	12.7 12.7 12.7	12.7 12.6 12.6
	1.0)	00000	0000 44 0000	2 2 4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6	22222	12.1
i	0.0		00000	0000 44 73	200000 20000 20000 20000		11.5
		-		40000 60000	8 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	4 4 4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6	10.8 10.8
,	0.7	•			4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	80000 80000 80000	16.0 10.0
1	9 . 0				1100	00000 00000	9.1
	0.5	0	0000				8 8 8
0 W F	K11	000				00000 00000	



YARN BULK DENSITY #0.69

a. w. f								96						ii.		
*K11	•	0.6	0.7	0.8	•	1.0	1.1	. 2	1,3	4.) 44 	1.6	1.7	60		2.0
; ; ; ; ;				1		•	1	0.0		00					60	0
~ ~ ~ 01 ko 4		000	000	000	000				000				31.6	0. 22.1	20.5	27.6
				00000	0 0 0 4	14.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	15000 1500 1500 1500	00744 450 660	200 1150 1150 1150 1150 1150	0 8 9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	211114 4	9.7.96.7.6 5.7.60.7.6	118 146 15 15 15	118 17.0 16.0 16.0 16.0	0.1.91 0.1.30 1.4.5	1177 1177 116.20 116.30
0 0 0 0 0 0 0 4 0 0 4	0 0 11 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	12.7 110.8 110.1 9.8	144 112.0 110.0 10.0 10.5	8 0 C - 4 C	13 12 12 11 11 13 13 14	13.7 122.7 123.5 12.5	######## P # # # # # # # # # # # # # # #	4 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	44466 46000	4444 4444 75488	14444 74444 0000	11115 1515 1516 1516 1516 1516 1516 151	44444 66644	2000 2000 2000 2000 2000 2000 2000 200	4444 6666 14000	4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
		00000 04000	4 5 0 0 0 0 0 0 4 5 0 0 0 0 0 0 0 0 0 0	111111111111111111111111111111111111111	2 2 2 3 3 4 3 5 5 6 6 7 7	122.23	1152.9 122.8 12.9 12.9	4 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	8 8 8 8 8 8 8 8 8 8 8 8	44444 84444 84444	4444	2 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	######################################	7.0.0.0 7.0.0.0 7.0.0.0	0.0.0.0.0 0.0.0.0	116.2 16.2 16.2 2.2
	00 00 00 00 00 00	000	10.1	10.0 10.0 10.0 10.0	11.5	12.2	12.7	13.3 13.3	13.7 13.7 13.7	444	14.6 14.6 14.6	14.9 14.9	15.3 15.3	15.6	N N N N	16.2 16.2



MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY #0.70

OVER						1		BET	1 1	9	(!
(K1)	0.5	9.0	0.7		6.0	4.0	1.1	1.2	1.3	4.4	4.5	1.6	1.7	1.8	6.	2.0
1 1 2 00		0	1 6	0.	9.	1 .	0	! .	0	: 0	0	0	! ! ! •			
o			0		0			•	•							
												0				
						0	0		0	•						
						_										0
-						_									9	
_	0.	.0	0	0									•			0
5					0				0	0		0	9.5	6 0	•	8
_							Ċ		80	6	•	~	7.3			
			0	0	0	• •	28.5	19.3	17.0	16.5	16.4	16.4	16.5	16.7	16.8	17.0
				0	0		•	'n	. ·	W	S	5	6.1	•	•	•
_			•			41	4	4	•	'n	K U	5	2.0	•	•	•
			•	3	3	5	3	+	4	*	5	5	5.7	·	•	•
	•	P)	2	N	ċ	3	2	, PO	•	4	5	Ľ.	5.6		•	•
	•	11.0	7	+	0	12.8	13.3	13.7	14.5	14.5	14.9	15.5	15.6	15.9	16.1	16.4
	0	c	•	-	2	2	ل ى م	3	•	•	•		5.5	5	•	•
24	9.1	_	10.6	11.3	11.9	2	•	m	•	•	4	3	ς. Σ.	เก	•	•
		•	0	-	•	è	1	100	10	*	4	5	5.5	5	•	•
	•	•		+	7	2	2	m	is M	4	4	w	5.4	ľ.	6.	ø.
	•	•		÷	+	ċ	2	3	m	4	•	ت	5.4	5	9	9
			10.5	11.0	11.7	12.3	15.9	13.4	13.9	14.3	14.7	15.1	15.4	15.7	16.0	16.3
59	•	9.3	9	÷	-	5	0	(A)	m	+	*	5	4	ر. د	•	•
	•	•	0	•	+	N	~	1	100	*		ĸ.	5.4	5	•	16.3
		•		10.9	11.6	12.3	12.8	13.4	13.8	14.3	14.7	15.1	*	15.7	16.0	ø
32	8.2	9.5	• -	0	÷	è	2	m	3	*	•	5	4	5	\$	9

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

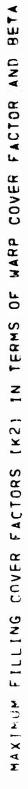
YARN BULK DENSITY #0.71

1 1 1 1	.4 1.5 1.6 1.7 1.8 1.9	0. 0. 0. 0. 0. 0. 0.	0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	0. 41.2 21.8 19.7 18.9 18.5 18.3 0.1 18.4 17.8 17.6 17.5 17.5 17.5 17.5 5.8 16.7 16.8 17.0 17.1 5.8 15.9 16.1 16.3 16.5 16.7 16.9 5.3 15.5 15.8 16.0 16.3 16.5 16.7	5.0 15.3 15.6 15.9 16.1 16.4 16.6 4.8 15.1 15.5 15.8 16.0 16.3 16.6 4.7 15.0 15.4 15.7 16.0 16.3 16.5 4.6 15.0 15.3 15.6 15.9 10.2 16.5 4.5 14.9 15.3 15.6 15.9 16.2 16.5	4.5 14.9 15.2 15.6 15.9 16.2 16.5 4.4 14.8 15.2 15.6 15.9 16.2 16.4 4.4 14.8 15.2 15.5 15.9 16.2 16.4 4.4 14.8 15.2 15.5 15.8 16.1 16.4 4.4 14.8 15.2 15.5 15.8 16.1 16.4	4.4 14.8 15.2 15.5 15.8 16.1 16.4 4.4 14.8 15.2 15.5 15.8 16.1 16.4 4.4 14.8 15.2 15.5 15.8 16.1 16.4
< !	1.5	.0		00 00 00 00 00 00 00 00 00 00 00 00 00	44444 94004	44444 00000	6.88 6.88 4.99
99 FF	,	000	00000	0 0 4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6	44556	44444 88888 9868	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
	₩ 	. 0	00000	00004	4 8 8 8 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9	###### #####	12.9
	4.0			0001	2 1 1 3 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	##### ##### #####	4.2.4
!		100		10000	00000	러 # # # # # # # # #	· · ·
1	0		0,000		5 42.0	संसम्म सम्मन्	· · ·
	• 1	66		00000	800000		000
	c	000		00000	• • • • • • • • • • • • • • • • • • •	00000	000
i !	0	000		00000		80 80 80 80 to	
ス ン に	X (00 0	5 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	204 204 204 204 204 204 204 204 204 204	00000	00000 00000	0 H C

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK BENSITY = 0.72

		_	0 N M O O	0 ~ ~ ~ 0 0	000mm	n in in in in	SSSS
	2	0	44 47 7	99999	99999	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9
•	4.9	₩.	11118	34455 64455	11116 1666 1666 1666 1666 1666 1666 16	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	16.2 16.2 16.2
(1,8	27.7	19.3 17.7 17.0 16.6	16.2 16.2 16.1 16.1	16.0 16.0 16.0	20000 00000	15.9 15.9 15.9
1	1.7	0	20 17 16 16 16 16 16 16	15.0 15.0 15.8 15.0	15.7 15.6 15.6 15.6	20 10 10 10 10 10 10 10 10 10 10 10 10 10	15.6 15.6 15.6
1	1.6	0	1183 156.01 156.01	7.5.5.1 7.6.7.7 7.6.7.4	2444 2000 2000 2000 2000 2000 2000 2000	######################################	4444 6666 6888
	2.5		118.9 15.9	##### \$\$\$\$\$\$ \$\$\$##\$	25444 00000	44444	444
1	1.4	•	21.2 17.1 16.0	C 4 4 4 4 4 4 4 6 6 6 7 6 6 7 6 9 7 6 9 7 6 9 7 6 9 7 6 9 7 6 9 9 7 6 9 9 9 9	44446 66666	4 4 4 4 4	4444 60000
	1 1 1	, ,	0. 17.9 15.2	4 4 4 4 4 6 8 4 5 6	44444	44444	44.0 44.0 4.0
0 2	1.2	0	0 20 10 10 10 10 10 10 10 10 10 10 10 10 10	1 4 4 4 5 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6	111111 1211111111111111111111111111111	44444 88888 8888	**************************************
	-	0	0.00.17.11.15.0	4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	113.5		13.0 13.0
	t ·		12000	4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	60000 6000 6000 6000	4 4 4 4 4	4444
	0	0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 W W W W	111111111111111111111111111111111111111		11.8 11.7 11.7
	1		0000	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	45000		1111
	1	· ·	0000	23.5 11.7 11.2	4445 7.1445	101 101 101 101 101 101 101 101 101 101	11000
	1		00000	16.0 10.0 10.6	00000	00000 44400	0000
		0 1		0 13 13 10 10 10 10	Q C C C C C C C C C C C C C C C C C C C	20 20 20 20 20 4 4 12 12 12 13	20 20 20 00 w
	K 1 0	1 4	77 7 7 8 6 7 8 6 7 8 6 9 6 9 6 9 9 9 9 9 9 9 9 9 9 9 9 9 9	01000 01004	00000		50 50 50 50 50 50 50 50 50 50 50 50 50 5



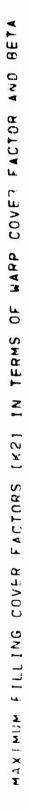
YARN BULK DENSITY = 0.73



MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.74

	6	•		00000	& & & & & & & & & & & & & & & & & & &	00 00 00 00 00	80 1 1 1
	2	· ~	9 9 9 7 7 7	2 2 2 3 3 3 3 3	99994	99999	4 6 6
1	4.9	-	4 1 5 1 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	84444 8444 8444 8444	44444 44444 44444 44444	4444 6466 6666	4444 4444 4444 4444
[]	1.8		1.081 1.081 1.04.01	0.911 0.911 0.915	11000	20000	16.2
	1.7	0	24.7 116.3 16.8 4.6	116.00 116.00 116.00	0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.	######################################	15.8 15.8 15.8
	1.6	0	27.0 118.0 16.6 16.6	115 115 115 115 115 115 115 115 115 115		~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	221 221 22.02 20.02
!		0	1200	22 4 5 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7		 	
	4		0 4 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	00044 40000	44444 8.6.7.7.	4 4 4 4 4 4 1 L L L L L L L L L L L L L	7.41 7.44 7.7.7
	1 1 1	0	1100 1100 1100 1000 1000 1000 1000 100	74444 48674	44444	4 4 4 4 4 0 0 0 0 0 0	4444
9.	1.2	0	0 0 4 4 4 0 0 0 0 4 4 4 6 0 0 0 0 0 0 0	4 4 4 4 4 0 4 0 4 0	44444444444444444444444444444444444444	13.7 13.7 13.7	13.7 13.7 13.7
	1 + 1 1 + 1	•	44 5000 5000 5000	44888 44888 64860	4 m m m m	44444 88888 88888	2000 2000 2000
				4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	112.4 112.7 112.7	12.00 12.00 12.00 12.00 12.00	12.6 12.6 12.6
	0.9	0	00000		00000	22444	
	0.0			44444 68664 0460			• • • •
	0.7	0.		04044			4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
	0	0.			1.0 0.0 0.0 7.0		
	0.5		00000		22000 4500 600		
2 LII 10	A X	1 4	59786	04284	00000 50000	0 # 0 M 4	2 9 7 8 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9
	_	-		204			



YARN BULK DENSITY = 0.75

ı	•	•	4 W	•		•		•	•	•	o .	•	•	٥.	•	•	•	•	•	٠	•	•	6.	•	•
	2	~	44	ابيو ا	₩.	7	-	~ 1		4	- 1	⊕ →)	*1	16	+1	•4	**	16	#1		-	-	40	-1	
	9.9	•	8.00		•	•	6.9		•	•	•	•	•	6.6	ě	•	•	9.9	•	•	•	•	6.6	•	•
1	60	CV	4 4				7 1	5						3				3					3 1		
	-	*	20.	~	1	\$	•	16.	•	ø.	ç	Q,	9	16.	•	\$	9	16.	V	Ø	9	•	16.	·C	9
	1.7	1 1 •	22.7		9	•	9	16.3	÷	ç.	•	6		16.0	•	•	'n	15.9	٠.		5	5	15.9	u`	ŗ.
			4 0 0 H	'n	œ.	4	Η.	5.0	æ	ac)	.7	7.	9.	5.6	9.	9.	۰	5.6	9.	9.	9	•	5.6	9.	•
	. 5		•		.7	•	œ	5.6 1	'n	4	m.	M)	٣.	5,2 1	٥.	.2	~	5.2 1	۶.	2.	٠.	۲.	5.2 1	CJ.	·
)	-1		+ 4	15	+	+1	+1	~ 4	**	15	**	-	++	-	4-4	īH	+	+1	15	4	₩
	4.	0	0 0		•		ŝ	15.3	Š	5	ů.	4	4	14.8	্ ব	4	4	14.8	*	4	4	4	14.8	4	4
	•	0	c =		9	ŝ	5	14.9	4	4	4	4	4	14.4	4	4	4	14.3	4	4	4	4	14.3	4	4
u:	1.2		0	31.6	7	3.	Š	14.6	4.	4	4	4	4	13.9	3	8	8	13.8	3	٠ س	3	85	13.8	3	×;
				• •	0	3	4	4.2	M	M	3	m	m	3.4	×.	3	M	3.3	m	3	8	3	3.3	•	۲,
	. 0					7	7	9	5	~	 1	•	5	8 1	90	~	7	7 1	7	/	7	7	7 1	7	7
	1.		0 0		0		4	13	M	PO	3	~	2	12.	~	2	\sim	12.	2	~	~	\sim	12.	\sim	\sim
	0		0 0			•		3.	3	ċ	s.		ò	2	8	2	12.1	2	~	2	2	~	2	5	~
	8.0						7.0	3.6	5.6	2.2	1.9	1.7	1.6	1.5	1.4	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	M.
	_ ~	1						9	4	9	\sim	0	æ	/	9		S		ν	S	Ω	4	4	4	4
			c: c	· c		c	C		2	-	11	-	C	10.	C			10.	C	\Box		C	10	C	C
		1		· .				ċ	•	+	C	-	•	6	•	6.7	•	*	•	•	0.5	•	0.5	•	•
	! ທີ່ ! = ! =	: : =		. c		•			•	•	6.6	•	•	•	•	×. ,	•	•	•	•	•	x v	•	•	•
	Υ Y																								
CONT.	4 ← 7 x	1 4															3.0								
											00														



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.76

	0	4	VW0.04	namm	00000	00000	0000
	2		ひきまままり スプアン	まままま	まままま	こう シア	ファファ
	6.1	•	00777	6 6 6 6 6	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	00000 VVVV	66.77
(80		0 0 0 0 0 0 0 0 0	8 T 9 S S	04444	44444	नेनेनेन
	+	0	22 12 17 17	99999	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	99999	666.
(1.7	0	23.9 19.0 17.7 17.1	6.45.00 6.45.00 7.45.00		16.0 16.0 16.0 16.0	16.0 16.0 16.0
1	5 1.6	•	190 17.8 16.9 16.9	44444 6664 6664 6664	8 8 7	15.7 15.7 15.7 15.7	15.7 15.7 15.7 15.7
	٠ -	6	2444 4669 6669 6669 6669	##### \$0.50.50.50 \$0.50.50.50	4 4 4 10 10 4 4 4 10 10	$\begin{array}{c} \bullet & \bullet & \bullet & \bullet \\ \bullet & \bullet & \bullet & \bullet \\ \bullet & \bullet &$	15 15 15 15 15 15 15 15 15 15 15 15 15 1
1	1.4	. 0	0 4 4 0 1 1 4 4 0 1 1 4 6	24 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	0.0444 0.000	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	4 4 4 4 0 0 0 0
	*	1	0. 20.8 17.4	20444 20444 44070	4 4 4 4 4 4 8 8 8 8 8 9	4 4 4 4 4	4444
9E ₹	1.2	0.	0.00 17.00 15.00	4 4 4 4 4 4 4 4 5 6 5 6 5 6 6 6 6 6 6 6	44444	9.6.6 9.6.6 9.6.6	4444 444 966 966 966
	4.4	•	0.00.00.00.00.00.00.00.00.00.00.00.00.0	44444 54488 04067	4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	44444 66666666666666666666666666666666	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
	1.0		0. 0. 0.	0.4 m m m	113.0 123.0 123.0 123.0	112222 12222 12223 1223 1223 1233 1233	12.7 12.7 12.7
	0.0	1	0.00.3	55000			0000
	0.0			æ 4 0 0 m	111111111111111111111111111111111111111	• • • • • • • • • • • • • • • • • • •	111. 111. 11. 11.
1	0.7		00000	0000111	11.1 10.9 10.8 10.7	110000000000000000000000000000000000000	011 010 010 010 010
,	9.	t i •		13.4 111.4	C C O O O	20000	
	0.5	i •			σσσπα		
A P P P P P P P P P P P P P P P P P P P	A Z	4 4		01000			



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.77

	1					1	1	B F ₹	(\ ([(1	1	
4 -	י ב	. 6	0.7	0.0	C	1.0	1.1			1.4	1.5	1.6	1.7	1.8		2.0	1
1 4	 						ı •	0.	•	0	9 9		0.	0.	33.7	24.	
5											0	0	5	+-	•	0	
16		u L	c	· c		0	c	0	c	0	23.0	20.3	19.4	19.0	18.8	18.7	
17							•	•		•	œ	8	7.	7	or.	9	
18						9		©	7.	~	7.	7	7.		7	7 .	
19	.			0	0		• 9	•	Ġ	. 9	•	9	•	7.	7.	7 .	
0 0			•	c	r,	70	5		5	5	é	9	•	é	7	1	
21				14.3	14.1	14.3	14.5	14.9	15.2	15.5	15.9	16.2	16.5	16.8	17.1	17.3	
22		4	•	PV)	3	3	4	4	5	r.	5	9	9	9	7	7.	
23	2	<u>.</u>	<u>٠</u>	2	3	8	4	4	4	5	5.	9	•	9	\$	r- •	
500 4	16.3	•	+	2	•	3	•	4	4	r,	5	ι.	•	•	•	7	
C	•	c		***	2	3.	رم د	4	4	'n.	5	r.	•	9	•	7	
56		10.2	11.0	11.8	12.4	13.1	13.6	14.2	14.6	15.1	15.5	15.9	16.2	16.5	16.9		
27		<u>.</u>	-	*	2	3	3	4	4	'n	5	Ŋ.		•	\$	7	
28	•	•	<u>-</u>	٠.	2	3	M)	4	4	Š,	5	ν.	9	. 9	5.	7.	
00	T CL	•	·	-	Ċ	0	8	4	4	5	٦.	م	9	· ·	·	7	
30	•	•	c	+	2	N.	3	4	4	5	r.	3	9	•	•	7	
		6.7	10.	11.5	12.2	12.9	13.5	14.0	14.5	15.0	15.4	15.8	16.2	16.5	16.8	17.1	
	•	•	ċ	<u>_</u>	<u>د</u>	?	M3	4	4	5.	5	5.	Ġ	9	5.	7 .	
	•	•	ċ	<u>+</u>	ė	~	κ,	4	4	v.	S.	ر. •	9	•	•	۲.	
4 %	x .v	•	· C	<u>.</u>	8	3	m	4	4	ν.	٦.	5	ç	•	ç	7.	
3.5	•	•	- -		\sim	~	• כיא	4	4	r.	r.	5.	•	Ś	ý	۲.	
	•	•	c		~	2	3	4	4	3.	Ľ.	n.		. 9	ć	7	
	X.	0	10.6	11.4	12.2	12.8	13.4	14.0	14.5	15.0	15.4	15.8	16.1	16.5	15.8	17.1	
		•	c	-	2	2	3.	4	4	Ŋ.	5	ς.	ç		•	7	

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.78

WARP

	2.0	9	20 . 3 18 . 9 17 . 7	24400 24400	117.3	17.52	17.52
5	1.9	62.	21.0 19.0 18.2 17.7	4444 447.3 447.0	17.0 17.0 15.9 16.9	44444 4444 4444 4444 4444 4444 4444 4444	16.9 16.9 16.9
•	1.8	•	22.6 19.2 18.1 17.6	17.0 16.9 16.8 16.8	16.7 16.7 16.6 16.6	16.6 16.6 16.6	16.6 16.6 16.6
	1.7	•	27.9 19.8 18.1 17.4	20 11 11 10 10 10 10 10 10 10 10 10 10 10	4 8 8 8 8 8	1116 166 166 166 166 166 166 166 166 16	16.2 16.2 16.2 16.2
(1.6	•	0. 20.9 18.3 17.3	44444446464646464646464646464646464646	146 146 15 15 16 16 16 16 16 16 16 16 16 16 16 16 16	4444 6000 6000 6000	# # # # # # # # # # # # # # # # # #
(1.5	0	18.7 17.3 16.6	11862 11862 11879 11879	44444 88688 88688	###### ###### ########################	11 12 13 15 15 15 15 15 15 15 15 15 15 15 15 15
2 2 0	4	•	0 19 17 16 16	16.0 15.7 15.5 15.4	15.5.2		15.1 15.1 15.1
	1.3	•	0. 0. 17.8 16.4	7 7 7 7 7 8 1 9 1 9	4444 6.7.7.8	44444 00000	4 4 4 4 • • • • • • • • • • • • • • • • • • •
BET	1.2		0.0 190.0 16.0	10.4 14.0 14.0 14.0 14.0 14.0	44444 80004		4 4 4 4 4 4 4 4
	1.1	0	00 00 17 17 10 10	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	1133.7 133.7 133.7	11111 133 133 133 133 133 133 133 133 1	2.50 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1
(1.0		0. 0. 19.0	74 5 5 5 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	88888 88888 88888	133.0 123.0 123.9	12.9 12.9 12.9
()	0	00000	4 8 6 4 6 4 6 4 6 4 6 4 6 4 6 6 6 6 6 6	122.5 122.5 122.5 123.5 4.4	120.3	12.2 12.2 12.2
	0.8	0	00000	27.8 13.2 12.6 12.2	12.0 11.8 11.7 11.7	111111 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1	11.5 111.5 111.5
1	0.7			18.5 13.3 11.6	111.3 111.0 110.9	10.8 10.7 10.7 10.7	10.7 10.6 10.6
(0.6			0. 0. 15.3 11.9	10.5 10.3 10.1 10.0	00000	00 0 0 7 0
I	U.5	0		0.00 13.00 10.50	000000 040	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$
OVER S		144			~~~~	0 H O B 4	



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.79

BETA	0,5 0.6 9.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8		. n. n. 0, 0. 0. 0. 0. 0. 0. 0. 0. 0. 32.3 23.5 2	. 0. 0. 0. 0. 0. 0. 27.0 21	. n. n. n. o. o. o. o. 26.4 20.4 19.1 18.6 18.4 18.3 18	. n. n. n. 0. 0. 44.8 19.8 18.2 17.7 17.5 17.5 17.6 17.7 17	. n. g. n. 0. 29.3 17.4 16.7 16.6 16.6 16.8 17.0 17.2 17.4 17	. n. n. n. 17.1 15.8 15.5 15.7 15.9 16.1 16.4 16.5 15.9 17.2 17	. n. 21./ 15.2 14.4 14.6 14.9 15.2 15.5 15.8 16.1 16.4 16.7 17.0 17	. 16.9 13.6 13.4 13.7 14.0 14.4 14.8 15.2 15.6 16.0 16.3 16.6 16.9 17	4.5 12.2 12.3 12.7 13.2	0.8 11.2 11.7 12.3 12.9 13.5 14.0 14.5 15.0 15.4 15.8 16.2 16.5 16.8 17	.9 10.7 11.4 12.1 12.8 13.4 13.9 14.4 14.9 15.3 15.7 16.1 16.5 16.8	.5 10.4 11.2 11.9 12.6 13.3 13.8 14.4 14.8 15.3 15.7 16.1 16.4 16.8 17	10.2 11.1 11.8 12.5 13.2 13.8 14.3 14.8 15.2 15.7 16.1 16.4 16.7 17	.1 10.1 11.0 11.8 12.5 13.1 13.7 14.3 14.8 15.2 15.6 16.0 16.4 16.7 17	.0 10.0 10.9 11.7 12.4 13.1 13.7 14.2 14.7 15.2 15.6 16.0 16.4 16.7 17	.9 9.9 10.8 11.7 12.4 13.1 13.7 14.2 14.7 15.2 15.6 16.0 16.4 16.7 17	. H 9.9 10.8 11.6 12.4 13.0 13.7 14.2 14.7 15.2 15.6 16.0 16.4 16.7 1	н 9.8 10.9 11.6 12.4 13.0 13.6 14.2 14.7 15.2 15.6 16.0 16.4 16.7 17	. 7 9.8 10.8 11.6 12.3 13.0 13.6 14.2 14.7 15.2 15.6 16.0 16.4 16.7 17	,7 9.8 19.7 11.6 12.3 13.0 13.6 14.2 14.7 15.2 15.6 16.0 16.4 16.7 1	.7 9.8 10./ 11.6 12.3 13.0 13.6 14.2 14.7 15.2 15.6 16.0 16.4 16.7 1	d.7 9.8 10./ 11.6 12.3 13.0 13.6 14.2 14.7 15.2 15.6 16.0 16.3 16.7 17	.7 9.8 10.7 11.6 12.3 13.0 13.6 14.2 14.7 15.1 15.6 16.0 16.3 16.7 1
	0 50	0.0	c.	c.	с ,	с •		c. •	·	. 4. E.	4.5 12.	α: !	.0 10.	.5 1n.	.2 10.	.1 1.0.	.0 10.	6.	0 1.	σ	6 .	. 9 .	. 7 9.	.7 9.	.7 0.

YARN BULK DENSITY = 0.80

to sugge by their sections which

	1	1 ! !	† 1	1	í	!	 	BET	1	! !						
4 - -	0.5	0.0	7.0	8 .		1.0	4	1.2	1.3	1.4	1.5	1.6	1.7	1.8	4.9	_
4	• 0	· ·	0	0	0		.0	•	•	0	.0	l 1 •	; ! •	i 1 •	. 0	t •
	0		0		0						0	0	+	4	Ċ.	•
			ŋ.					•	0	0	· ·	2	0	6	•	
			0.					•	<u>ن</u>	+	•	ж •	œ	8	œ.	٠ ص
	.	0	0	0	0	•	0	20.7	18.6	17.9	17.7	17.7	17.8	17.9	18.0	18.2
19	0		0					7.	•	•	ç	7	7	7	7.	.
	0	0			7.	•	3	5	•	•	•	•	i~	7	7	7
	0			5	4	4	5	δ.	ŗ.	3	Ś	9	9	7		
	0	0	4	13.7	•	14.2	14.6	15.0	15.4	15.7	16.1	16.4	16.8	17.1	17.3	
	7.			۲.	٠	₩,	4	4.	5	5	•	9	•	7.	7	
24		1.	•		M	3	4	4	5.	5	ر ت	9	9	•	•	17.5
	•	0	بہ	~	٥.	₩,	4	4	5	r.	5.	•	9	9	7	7
	9.6	10.5	11.5	12.0	12.7	13.4	13.9	14.5	14.9	15.4	15.8	16.2	16.5	16.9	17.2	7
	•	ċ		-	?	8	₩,	4	4	5	5.	9	9	9	7	7.
	•	9	1.	7	⊹	∾.	~	4	4.	<i>ا</i>	٦.	9	9	•	7	7
56	• '	·	-	+	ė	3.	5	4.	4	5.	r.	6.	•	•	7.	17.4
3.0	•	•	_	<u>.</u>	۲.	₩.	M;	4	4	5	5.	9	9	•	7	7
3.1	э Т	0	10.3	11.7	•	13.1	13.7	14.3	14.8		٦.	•	ý	16.8	•	7
	•	•	ċ	+	2	∾.	رسم	4	4	3.	5	ģ	9	Ŷ.	7.	7.
	•	•	Ċ.	1.	c.i	M 3	≈	4	4	ις. •	ı,	6.	÷	9	7	7
	•	•	· c		\sim	ج	•	4.	4		15.7	16.1	16.5	•	7	17.4
	•	•	<u>-</u>	•	2.	κ.	~	4	4.	٠.	r.	9	v.	ý	*	~
	•	•	-	•	2	κ.;	~ >	4	4	5.	10	9	0	ò.	7.	7
۲۲	1.	и О	10.3	11.6	12.4	13.1	13.7	14.3	14.8	15.2	15.7	16.1	16.5	16.8	17.1	17.4
	•	•	-	•	~	M)	M	4	4	л •	ĸ.	9	9	9	7.	7.

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY *0.81

	6	^	4 0 00 M H	00110	00000	ម្រាស មា មា	տոտո
	2		7 + + + + + 0 0 0 0	てててて	ひりてりて	7744	17. 17. 17.
1	0		\[\text{var. va} \]	V 0 R 4 4	500000	00000	~~~~
			20000	てててて	まてまする	ナナナナナ	7777
, (8 .		0.00	4 E C C C C C C C C C C C C C C C C C C	0.0000	00000	0000
		! !	2000	HHHHH 2000	HHHHH 10000	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	9 9 9 9
	1 -	0	0 221 13 17 17	17.5	116.6	16.6 16.6 16.6	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
1	. 6		4 00 m	0 L 0 N 4	mmmnn	00000	~~~~
ı	3	0	1000	9999	99999	9 7 7 7 7 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	1001
		i •	0.00	V 4 0 1 1 0	$ \frac{1}{2} $	n n n n n n a a a a a a	ກະທຸກ ລາວເວັດ
		1	0000	4 1 6 7 6	00044	4 4 4 4 4	e e e e e e e e e e
	1.	0	11000	99555	2 4 4 4 4 2 5 5 5 5	n n n n n	4 4 4 4 7 7 7 7 7
	(M 8			U O IC M C	40000	00000	0000
4	i	1	1900	44444 60000	1	4444	4444
8		0.	0.000.000.000.000.0000.0000.0000.0000.0000	1.6 1.7 1.7 1.4 1.6 1.6	4 4 4 4 4 0 0 0 0 0 4	4 4 4 4 4	4 4 4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6
	1.1	1 •		HUV 4 V	40000		ααααα
	•	1	Ħ	96444	44466	ののののののできませせ	**************************************
	1.0		00.00.00.	0.441 0.44 0.44 0.7.	60000000000000000000000000000000000000	13.2 13.2 13.2 13.2	13.2 13.2 13.2
	6			chern	carre	cunn u	nunn
	1	_	00000	4444 95488	B 6 6 6 6 6	4444	122
	1 80			0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0000 m m o o o	8 8 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	7.1
	1	!		0 7 0	64844		
	1 0		- 	00404		111111111111111111111111111111111111111	
	c			c w	0.040.4	45530	0000
	1	-		00014		111000	0000
				0. 0. 7.4.8	2.00	$\mathbf{p} \propto \mathbf{x} \propto \mathbf{x}$	x c r r
		i		2 41	•		
	œ.						
Q > C	N	4			norma		nonz
A C			का का का का का	200	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	ммммм	10 11 11 11 11 11 11 11 11 11 11 11 11 1



YARN BULK DENSITY = 0.82

	•	!_					٠																	
	2 :	1 9	•	•	8.5	•		• (7.8	•	4	•	•	.,		•	•	•	9	•			9 9
	1	4	~	-	0 M	-1	•	H +	4 +4	94 9	4	wi	+1	┥	34 ÷	4	17	17	17	17	4			17
	1	0	100	0.	4 8 4 8 6 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	30	•			17.5	•	7.	7		17.4		7.	7.	7.	17.3	•	7	~	17.3
	1 =1	0.	7	0	19.0	7		7	7	17.2		7			17.1		7	7	7	17.0	•	7.0	7.0	7.0
	1.7	0.	0	÷ (19 19 19		7		7	16.9	•	8.9	80 1	6.7	16.7		6.7	6.7	6.7	6.7		6.7	4.7	6.7 16.7 1
	1.6		<u>ပ</u>	4.	189.7	•	7.1	. 90	6.7	16.6		4.	4 .	4.0	 		י כייו	٠;٠	س ا	6.3 1		۳)	m !	6.3 1
	1.5	1 0			0 00 1	7.3	8.9	6.5	6.3	16.2 16.1		6.1	0.0) u	5.9 1		<u>ه</u> .	•	o. (5.9.1		.9	o. 0	5.0
	1.4	1 .	0		000	7.	9.9	6.5	0.9	ν, υ ω ν	,	٠ u	. ע	טיני	5.5	į	, u	n u	U n	7.4	•	4	+ + + •	4
	1.3	1 .			40	0.1	4.9	2.9	2.6	4.0 4.0 1.4.1	•	7.6		, r.	5.0 1	•	r .		 	5.0 1	•	- d - d - d - d		3.00
BET	1.2			• (23.0		6.3	5.6	2.5	14.8 1	7	1.4	4	. 4	4.5 1	u	. 4 U R	\ u	. 4	4.5.1	•	- ·	* *	4
	 	• C				•	4.4	5.4	4 4	14.4	0	7 -	4.1	4	4	O	. 0	0	0	3.9 1	Ċ	7 .	. 0	3.9
	10.1	•			ດ + ເ	\ •	7.0	5.3	4 4 U 4	3.6	7	3.5	3.5	3.4	M	M	, M	M.	2 10	3.3 1	~	· ·	1 -	3.2.1
i	0 1	0				•	0.5	v. 2		3.3.1	F .	2	2.8	2.7	2.7	7 1	· •	. 4	4	2.6 1	4		ָר ה	2.5
	0.8				.00		0 ;	, .	• •	2.7 1	•	2.2	4	0.	٥.	0.	0	.8	60	1.8 1	90	1 +	60.	. 89
1		. 0			0		•	٠,		2.2 1	00	1.5 1	۳.	~	-1		.0 1	.01		.0 .	6	9	.9 11	9 1
!		•			٠.			•	4	1.7 1	.1.1	0.7 1	.5.1	.3 1	.2 1		.1.	.0.1	.0 1	. 0 1	. 0		.0 10	.9
1	0.5			•				• •		. 6	.4	α.	 	.3 1	.2	1 1	1	_ _	.9 1n	9 1	5	9	9 10	α
į	1		J 0	Û	© O	() ¢	o e	0	11		0				0	5	o	œ	æ			8	
2 × ₽ C + ₽	Y I	4	15	7	20 0 -		> •	4 (\)	m	4	EU.	vc ∣	~	aro <i>i</i>	•	_	_ 4	~ ·	•	_				
A C A	- 1	3 -4	₩ ₩	-		•	~ c	0	N	à	2	~	~	~	~	10	31	60	%	4	35	36	37	0 0 ₩7

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

VARN BULK DENSITY = 0.83

DXFORD FARRICS

	2.0	. 0	4 11 0 0 1 1 4 4 1 1 1 2 4 1 1 1 1 1 1 1 1 1 1 1	270000	17.8	17.8 17.8 17.7 17.7	17.7 17.7 17.7 17.7
1	1.9	•	4 C O C C C	44.4	~~~~~ ~~~~~	2 K K K K K K K K K K K K K K K K K K K	4444
9 1		•	0.10 0.00 0.00 0.40 0.41	7.7.7. 7.8.8. 4.4.4.4.	20001	11.7.7.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	444.
 			W4 W 00	40.00	00000		च च च च © © © © ©
) []) 	000 B T	44444 77779	\$ 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	44444 44444	6 6 6 4 4
		0	0 100 100 100 100 100 100 100 100 100 1	17.2 17.0 16.8 16.7	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 4 4 4 4	16.4 4.61 4.61 4.61
	1.5	0	21.0 118.5 17.5	17.0 16.7 16.5 16.3	1100 140 140 140 140 140 140 140 140 140	20000 20000 20000	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
			0 2 1 1 1 7 . 4	16.7 16.3 15.9	111111 111111 1111111	11 15 15 15 15 15 15 15 15 15 15 15 15 1	21 21 22 23 24 25 25 25 25 25 25 25 25 25 25 25 25 25
	1.3	· ·	0. 0. 20.2 17.6	16.6 115.7 15.7 15.5	2000 2000 2000 2000 2000		15.1 15.1 15.0
BETA	1.2	. 0	0. 0. 26.4	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	441144 44144 7.44	44444 60000	4 4 4 4 R. N. N. R.
	 		000000	16.7 15.6 15.0 14.7	4 4 4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6	44444	14.0 14.0 13.0
	1.0	l •	00000	2. 441 2. 441 2. 441	8 9 9 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	######################################	13.3 13.3 13.3
	0				ちょうらら	00000	0000 6444
	1 C	• =		C 4 4 6 7 7 4 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	1122.3	111.9 111.9 111.9	1111
	, · · ·			0. 15.6 13.2			4444 4444 6000
	1 C				111.2 111.8 111.4 11.3	10.2	10.01 10.01 10.01
	1 =	l I •			01 00 00 00 00 00 00 00 00 00 00 00 00 0	,	0000 x x x x
	î 						
1 U.	- X	1 4			<i>u u u u u</i> . <i>u</i> .	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	



MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.84

A R P								in in								
FAC-108	0.5	9.0	0.7	0.8	0.0	0 .	 	1.2	1.3	1 4 1	1.5	1.6	1.7	80	4.9	
14	0						0	0	. 0	0		0	0	0.		•
												•	C	7.	5	2
						0	0.	0	0	0	0	29.0	23.0	21.4	20.7	20.3
							C	0			•	•	0	6	•	0
							•		•	6	90	છ	αΩ	90	80	ъ
	• •			0 .			-	8	7.	7.	7.	7.	7	8	œ	8
	0	c	0		80	- 30	7	•	•	•		7	7	7	«C	œ
			0	ô	5	3	R.	5	9	9	4	7.		7.	7	80
		C	4	4	4	14.8	15,2	15.5	15.9	16.2	16.6	16.9	17.2	17.5	•	18.1
	0	4	~	~	8	4	4	5.	5			9	7.	~	7	8
	13.0	~	12.5	M	8	4	4	5.	3	5	ç	6.	7.	7.	_	8
	0	•	~			M	4	4	5	iv.	·	9	7	7		i~
	٠	· c	• بـــا	0	M)	13.7	14.3	14.9	15.3	15.8	16.2	16.6	17.0	17.3	17.6	17.9
	ъ.	د	4 -4	ò	8	8	4	4	'n	3	9	9	9	!~	7.	7.
	•	<u>.</u>	1	?	i,	₩.	4	4	Š	5	•	9		7.	7	7.
	• o	c	11.3	~	?	₩.	4	4	5	5	•		ç	7	7.	7
	•	٠ د	***	0	~	M)	4	4	5	ٽ. •	¢	•	é	7	7	7,
	•	\subset	1.	2	2	13.5	14.1	14.7	15.2	15.7	16.1	16.5	16.9	17.2	17.6	17.9
	•	c:		<u>`</u>	ر. •	٠.	4	4	Ľ.	s.	•	9	6	7.	7.	: .
	•	ċ	•	<u>ر</u>	?	3	4	4	5	S.	ć.	e	9	7	•	7
	•	-	11.1			٠.	4	4	5.	5.	9	\$	•	7		7
	0.6		•		12.7	(A)	4	4	5	5	·	9	•	7.		۲.
	•	ć	1.	+	2	3	4	4	5	5	9	9	· ·	7		`
	•		11.1		?	13.4	14.0	14.6	15.1	15.6	1.6.1	16.5	16.9	17.2	17.5	17.8
	•	-	+	•	5	M	4	4	Š	ζ.	è	•	.0	7	7	7.

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

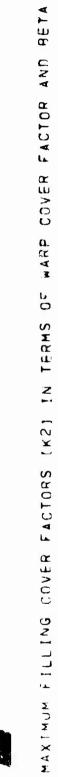
YARN BULK DENSITY =0.85

	2.9	0	N 0 0 0	3 0	8 8 8 8 8 8 4 8 8 4 4	******	0 0 0 0 0 0 0 0 0 0 0	8888
	1.9		22.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.	4	0.000 0.000 0.000 0.000	117.7 127.7 127.7 127.7 127.7	17.7 17.7 17.7 17.7 17.7	17.6 17.6 17.6 17.6
	. 8) 	21.9	69	118.0	4444	17. 17. 17. 19. 19. 19. 19. 19. 19. 19. 19. 19. 19	17.3
	1.7		23.9	00	17.5	17.1 17.1 17.0 17.0	117,0 17,0 17,0 17,0	17.0 17.0 17.0
	1.6	0	0.34.0 24.0 20.7		17.5 17.5 17.0 16.9	16.8 16.7 16.7 16.7	444 466 666 666	16.6 16.6 16.6
	1.5	6	0 C C C C C C C C C C C C C C C C C C C		1111 1101 100 100 100 100 100 100 100 1	4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	66.000 66.000 60.000	16.2 16.2 16.2 16.2
	4.4		0000		17.1 16.6 16.3 16.2	11 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	15.08 15.77 15.77	7.54 7.7.7.
	4.4	t •	000	00	44444 456 466 466 466 466 466 466 466 46	24 4 12 12 5 4 4 12 12	ままままま あらららら まきする	15.2
LU	1.2		0000		24 24 26 26 26 26 26 26 26 26 26 26 26 26 26	200000 00000	4 4 4 4 4 6 8 6 7 7 7 7	444 7.44 7.74
	1.1	. 0			17.3 16.0 14.9	4444 6444 64560	4444	+ + + + + + + + + + + + + + + + + + +
	1.0	! : •	0066		8.91 1.00 1.41 1.00 1.00 1.00 1.00 1.00 1.0	144 144 144 16 16 16 16 16 16 16 16 16 16 16 16 16	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	1133 133 133 133 133 133 133 133 133 13
	1 6		0000		144.0 24.4 24.0 2.4	40.000 40.000	000000 00000	22.22
	10				22.3 15.2 15.1	000000 00000 00000	27 2 2 4 4 4 6 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7	12.0 12.0
	0.7	1			18.0 13.8	489954 20004	88200 	
	0.6				15.7 12.7	4.00.00 4.00 4.00 4.00 4.00 4.00 4.00 4	4 m c c c c	10.2
	0.5	i			0. 0. 0. 13.9	111 101 10.3 10.9 10.0	3336G	7000
8 > 0 U	FACTOR [K1]	4			0 11 0 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			N T T T T T T T T T T T T T T T T T T T
					30	0		

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.86

BETA	1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9	0. 0. 0. 0. 0. 0. 0. 0.	. 0. 0. 0. 0. 67.3 24.9 22.4 21.3 20.9 . 0. 0. 28.0 24.1 . 0. 0. 0. 86.3 23.4 21.1 20.3 19.9 19.7 19.7 . 0. 22.9 20.2 19.3 19.0 18.9 18.9 19.0 19.1 . 6 19.5 18.5 18.1 18.1 18.2 18.4 18.6 18.8	.7 17.2 17.1 17.2 17.4 17.6 17.9 18.1 18.3 18.6 .2 16.3 16.5 16.8 17.0 17.3 17.6 17.9 18.2 18.4 .5 15.8 16.1 16.5 16.8 17.1 17.5 17.8 18.0 18.3 .1 15.5 15.9 16.3 16.7 17.0 17.4 17.7 18.0 18.3 .8 15.3 15.7 16.2 16.6 16.9 17.3 17.6 17.9 18.2	.6 15.1 15.6 16.1 16.5 16.9 17.2 17.6 17.9 18.2 .5 15.1 15.5 16.0 16.4 16.8 17.2 17.5 17.8 18.1 .4 15.0 15.5 16.0 16.4 16.8 17.1 17.5 17.8 18.1 .4 14.9 15.4 15.9 16.3 16.8 17.1 17.5 17.8 18.1 .3 14.9 15.4 15.9 16.3 16.7 17.1 17.5 17.8 18.1	.3 14.9 15.4 15.9 16.3 16.7 17.1 17.4 17.8 18.1 .3 14.8 15.4 15.9 16.3 16.7 17.1 17.4 17.8 18.1 .3 14.8 15.4 15.9 16.3 16.7 17.1 17.4 17.8 18.1 .2 14.8 15.3 15.8 16.3 16.7 17.1 17.4 17.8 18.1 .2 14.8 15.3 15.8 16.3 16.7 17.1 17.4 17.8 18.1 .2 14.8 15.3 15.8 16.3 16.7 17.1 17.4 17.8 18.1	.2 14.8 15.3 15.8 16.3 16.7 17.1 17.4 17.8 18.1 .2 14.8 15.3 15.8 16.3 16.7 17.1 17.4 17.8 18.1 .2 14.8 15.3 15.8 16.3 16.7 17.1 17.4 17.7 18.1 .2 14.8 15.3 15.8 16.3 16.7 17.1 17.4 17.7 18.1
	7 0.8 0.9	.0.0		0. 0. 19 29.2 17.3 16 1 15.6 15.1 15 1 14.0 14.3 14 9 13.3 13.8 14	3 12.9 13.5 14 9 12.6 13.3 13 7 12.5 13.2 13 6 12.4 13.1 13 5 12.3 13.0 13	4 12.2 13.0 13 3 12.2 12.9 13 5 12.1 12.9 13 5 12.1 12.9 13 2 12.1 12.9 13	2 12.1 12.9 13 2 12.1 12.9 13 2 12.1 12.9 13 2 12.1 12.8 13
	0.5 0.6		0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	6. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 17.0 14. 15.1 12.8 12.	11.4 11.7 12. 10.4 11.2 11. 9.9 10.9 11. 9.7 10.7 11. 9.5 10.5 11.	9.4 10.4 11. 9.5 10.4 11. 9.2 10.3 11. 9.2 10.3 11.	9.1 10.2 11. 9.1 10.2 11. 9.1 10.2 11.
	AC 1 2 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	14	4 4 4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6	30 0 tt 0 to 4	00000	8 8 8 8 8 8 0 4 8 8 4	50 60 60 60 10 60 7 60



YARN BULK DENSITY = 0.87.

T T T

OVER CHR	!	1	1		((9 E			i	1					
X		. A) · U	0C	0 .	1.0	4.4	1.2	1.3	4.	1	1.6	1.7	₩.	1.9		
4	=	C	_	=	-	0 .	 	·	0.	0	0	0.	0	0	c.	0	
3													c	C	0	4	
9										C		· ·	· ·	Cu.	-1	, ,,,,-4	
7									0	0	4	-	0	0		0	
16						C		0	24.3	23.7	19.7	19.3	19.1	19.1	19.2	19.3	
40	· c	ċ	• C	Ċ	c c				œ	œ	œ.	or.	ac.	œ	00	ος) Ο()	
2.0	c		•		0	•	α.	<u>۲</u> .	7.	1.	,	7.	œ	00	œ.	a)	
21			C	ċ	7	Ġ	•	\$, o	•	7	7	7	8	8	œ	
25		•	4	·O	ιυ	ic.	5	5	9	ó	•	7	7.	7	œ	ယ	
23	C	0	4	•	4	14.8	15.2	15.6	16.0	16.4	16.8	17.1	17.5	17.8	18.1	18.4	
4	11.4	13.1	•	M	13.9	4	4	5	5	·c	ď	7 .	~	7	c 0	œ	
5.5	•	•	0	1	*	4	4	ic.	'n		ć	1	7	7.	8	80	
26	•	-	•	·	M	14.0	14.6	15.2	15.6	16.1	16.5	16.9	17.3	17.6	17.9	18.2	
27	_	_	,	$\dot{\sim}$	κ,	3.	4	5.	'n	9	·¢	9.	•	7	1	00	
33	· •	c C	.	$\dot{\sim}$	~	3	4	٠	r.	Š	į	ċ	۲.	7.	7	œ.	
90	, r	y • []	1.0	10.4	13.	, N°,	.1	ď,	'n.	\$	·c	v)	۲-	7	7.	œ	
(C)	•	· - 12	•	0	₩.	~;	্ ব	٠,,`	r.	.	·c	0	۲,	۲.	,	a)	
11	•	10.4	11.4	12.3	۳,	13.7	14.4	14.9	15.5	15,9	16.4	15.8	17.2	17.5	17.9	18.2	
32	•	17	٠,	å	3	۶.	4	• प	5	ır.	٠ ٧.	ď.	۲.	•	7	'n	
33	•	<u>.</u>		ς.	٠,	<u>ن</u> م	.1	4	5.	ď	4 .	(D	۲.	7	7.	20	
3.4	•	·	• -1		13.5	~	4	41	s.	(n)	·	·C	۲.		7.	in Cu	
i,C	•	Ç.	•	~	(\.	~;	4	4	5.	10	¢	Ċ	7	~	7	a	
	•	<u>.</u>	•	~	\sim	~ ∋	4	4	5.	ر. د	ν.	ç.	<u>٠</u>	1.	7.	ф •	
		10.3	11.5	12.1	12.9	13.6	14.7	14.9	15.4	35.9	16.4	15.3	17.2	17.5	17.9	18.2	
	•	(-	•	·.	$\dot{\sim}$	~)	₹7	্ ব	٦.	٠.	٠.	5.	•	,	·	· 1	

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND RETA

YARN BULK DENSITY #0.88

	1 0		~	4 44	H 20 10 10 10 10 10 10 10 10 10 10 10 10 10	4 44000	C	
	2	10	'n,	20.	0 00 00 00 00		(C)	8 8 8 8 8 8 8 8 8 8
	6.		œ ,	- a m	0 04MU.	4 44000	99996	9000
	1 2-1	- 0	M E	190	ഇത്തെന്ന		60 60 60 60 60	σαααα
	1 00	1	•	0 4 W				9 9 9 9 9 1 1 1 1 1 1
		i i	C	200	न नेनेनेन		77777	17. 17.
		0.	0 1	21.0		~~~~	~~~~	V V V V V V V V V V V V V V V V V V V
	.6	1 .		200	0 0 10 10 10	40000	99999	0000
		. J	0	200	0 1111	01111	16. 16.	16.
	1.5		0	40.	o nnnoc	00000	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	ww 4 4
I	4	l F		~ W W	n - 0 - 1 - 0 - 0	नलननन	ਜਜਜਜਜ	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6
		0	00	27.0	000077	2222	16.1 16.0 16.0 16.0	18.0 16.0 16.0 16.0
} '	1.3	•		. 200			e ou n u	n n n n
< □				0+	ਾ ਜਜੰਜੰਜੰ		4 4 4 4 4 0 0 0 0 0	15 15 15 15
38	+	0.		000	70000	15.15.44 4.5.15.14	15.0 15.0 15.0 15.0	15.0 15.0 15.0
j ,	1.1					σισου	R 4 4 4 4	4444
!				00 E		44444	44444	च च च च च च च च
i 1	1 1	0		000		14.1 14.0 13.9	13.8 13.8 13.8 13.8	W B B B B B B B B B B B B B B B B B B B
;	6		٠.		***	V W 4 W V	~ = = = =	
1	0		00	200	4 4 4 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	8 8 8 8 8 H H H H H	44444 4444	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
	0.8					40 V W W	4 w w w w	2222
;	7				ਦੇ ਜ਼ਿਲ੍ਹ ਦੇ ਜ਼ਿਲ੍ਹ ਨੇ ਲ	# # # # # # # # # # # # # # # # # # #	\$ 1 H H H H	2224
	c			000	0 C O 4 W	12.5 111.9 111.9 111.0	11111 7.1111 7.144	11,3 11,3 11,3
	0.6			• • •		04467	c n n 4 4	4 m m m
	1	_	C 0	c o o	いいいいいいいいいいい	2111	100	10. 10. 10.
1	0.5	Û		000		10.7 10.7 90.8	00000 04000	0000
Oz.								
MARP COVER FACTO	X	-	100	1 H H O O		00000 00000		5 5 7 8 5 5 7 8
	•					73	7 117	ਦਾਨ ਜਾਂਹ ਦਾ ਹੈ



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

OXTORD FABRICS

VARN BULK DENSITY = 0.89

0		1	1 1 1			i	1	8 E	:		!	i	1			1
K 4 1 2	5.5	· ·	7.0	0.8	0.0	1.0	1.1	1.2	£ . 1	1.4	÷ ;	1.6	1.7	4 . 1	6 1	2.0
4 4	1	i		0	0		· ·	C	0	0	0	0	0		. 0	0
	=												•	•	c,	9
16	-	· c	- -	0	Û.	0	0	0	0	0	ċ	0	30.5	24.3	22.5	21.8
	· E)								ċ	0	œ	2		0	c	0
			· -					0					•	•	0	0
									٠ •	30	œ	œ	œ	œ	•	6
						4	c,	œ	7.	7	7	70	æ	œ	8	80
	. Û	с С	· C		6	17.3	14.8	16.8	17.0	17.2	17.5	17.7	18,0	18.3	18.5	18.8
				′°	5	in	5.	÷	•	\$	7	7.	7.	œ	80	80
	=		R			3	5	5.	•	9	7.	7	7.	œ	8	00
40			•	~.	4	4	5	5.	ç	9	÷	7 .	7.	7.	œ	αυ
	~	~	\sim	1	~	4	5	5	5	9	ċ	7	7.	2	ar.	00
_	=	-	<u>ر.</u>	۲,	8	4	4	5.	5	9	•	7	7	7.	an O	• •
	10.3	11.2	12.0	12.8	13.5	14.1	14.7	15.3	15.8	16.2	16.7	17.1	17.5	17.4	18.1	•
	· 5	<u>.</u>	.	·	3.	4	4	5	5	•	ċ	7	7	7	nc.	о О
-	•	<u>.</u>	+	~	3	4	4	5	υ.	•	ç	۲.	•	۲.	60	00
3.0	•	<u>.</u>	-	~ 	M)	M	4	5	5.	•	v.	7	7.	7.	orc.	10
	2.5	10.6	11.5	12.4	13.2	13.9	14.5	15.1	15.6	16.1	16.6	17.0	17.4	17.7	18.1	18.4
	•	<u>.</u>	-	0	3	M3	4	5.	5	•	ς.	7	7.	7	oc	œ
	•	·	-	Ċ	₩;	3	4	5.	5	•	ċ	,	7	7	φ	œ
	•	C	-	°.	m	m	٠ ته:	5.	5	•	•	7	۲.	7	• • X .	α.
	•	· C	-	ζ.	M	(A)	4	e.	5	. 9	· c	`	,	7.	σ <u>c</u>	œ
46	· .	10.4	11.4	12.3	13.1	13.8	14.5	15.1	15.6	16.1	14.5	17.9	17.4	17.7	18.1	18.4
	6	·			~ ;	۳.	4	ů,	5	÷	į	7		7	α.	œ œ
	•	Ċ	,	ċ	33	·,	4	r.	'n	Ċ	4	۲		٠. •	æ.	an On

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =0.90

						, ,										
								Œ	1	1	1			,	1	!
Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z		V2 C		8 .	0.0	1.0	1.1	1.2	# # P	1	. 5	1 7 1	1.7	1 1 1	5 1	
4	1		; • ! C	 • •	0 1	•	 • •		0	. 0		1 1	·	•		
	<u>~</u>			c									C			α
· •			•								•	•	کا د			
											•	, ~	•	٠, -		, –
									• •	· ~	20.8	20.1	19.8	19.7	19.7	49.8
10	0		· c	· c			c				ac	ò	00	0.	•	6
c						œ	0	αc	œ	20	α	60	αc	90	Œ	•
					· ·	7	7		,	7	7	7	oc oc	00	oc.	00
				α	· · ·	· •	· •		· •	7	,	7		. 60	00	00
			· · ·	15.0	•	15.2	15.6	16.0	16.4	16.8	17.1	17.5	17.8	18.1	18.4	18.7
	0	14.4		8	14.3	•	5	5	ċ	9	7.	7.	7.	60	60	œ
~	ί.	~	ζ.	۲,	4	4	5	5	•	9	Ψ.	7	7	60	nc.	න •
	·	· -	~	~	3	4	4	N.	7.	9	ć	7	7	7	00	φ,
	0		~	~	3	4	₹	5	5.	•	9	7	7.	7	œ.	a)
	16.0	11.0	11.9	12.7	13.5	14.1	14.7	15.3	15.8	16.3	16.7	17.2	17.5	17.9	18.2	18.5
	ъ.	·	-	~	~	4	4	Š	ŗ.	9	•	7	7.	7	•	. 60
30		· c	+	~	•	4	4	5	3	•	ć	7	7	7	œ	ω
	•	=		0	3	4	4	5	5	9	ζ.	7	7	7	ď	œ
	0.	10.6	11.6	12.5	•	13.9	14.6	15.2	15.7	16.2	16.7	17.1	17.5	17.8	18.2	18.5
	•	·	-	~	M)	3	4	5.	5	•	•	7.	7	7	œ:	ф ф
	•	c.	•	ċ	3	3	4	5	5.	ç	•	۲.	7	7	80	o O
	•		-	~	3	ارم	4	5	5	9	v.	7	7	7	Œ	œ
	•		.	~	•	P.5	4	ŗ.	5		ć	7	7	7	<u>.</u>	10
2	~ . 7	10.4	11.5	12.4	H)	13.9	14.5	15.1	15.7	16,2	16.6	17.1	17.5	17.8	18.2	18.5
	•	ċ	:	~	•	3.	4	5	5.	•	ċ	7	7	7	x	ю Э

MAXIMUM FILLING COVER (ACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =0.91

NYFORD FARRICS

1	0		20 5	s /	0	10	٠	0	0	ന	on.	Γ.	7	7	9	9	9	9	9 0	•	•0	9	v O :	.	6
1	01	0	0 0	200	6	6	6	16.	()	œ	6 0	œ	18.	80	w	œ	00	18.	œ	о Ф	œ	00	÷ 99	10	œ.
; 	1.9	0		20.0	6.6	9.3	0.6	18.₺	8.6	8.5	80	œ	18.4	60	œ	œ	œ	18.3	ю Ф	.	œ	8.3	18.3	30 · 00	• •
	9 1	0		21.3	0.	6	00	18.5	œ	æ	œ	80	18.0	œ	œ	œ œ	8	17.9	7	7	7.	7	17.9	. 1	
1	1.7	0.	0	22.2	0	5	60	18.3	00	7	7.	7	17.7	7	7	7	7.	17.6	7	7	7	7	17.6	. 1	7
l Li	1.6			24.5	O	6	00	18.0	7	7	`	7	17.3	7	7	7	7	17.2	٠,	7	7	7	17.2	· ·	`
1	1.5			4.0	•	0	œ	17.7	7	7.	7	7	16.9	v.	9	•	ç	16.8	ď.	ċ	ç	•	16.7	·	ċ
1	+ + + + + + + + + + + + + + + + + + +	•	•		•	0	80	17.5	7	9	•	· o	16.5	9	•	•	v 0	16.3	•	ė.	•	•	16.3	9	•
	1			 c c	•		œ	17.3	•	ċ	•	é	16.0	ċ	5.	5.	5	15.8	5	5	5.	5	15.8	·	ic.
e m	2 6			 c c	C		60	17.2	ç	ò	<u>.</u> ប	5	15.5	5	5.	5	5	15.3	5.	ۍ	5.	5.	15.2	ŗ.	ŗ.
	1 1 1	0		 c c			0	17.4	×	50	ıv.	r.	15.0	4	4	4	4	14.7	4	4	4	4	14.6	4	4
		•		 c c			4	18.1	•	10	4	4	14.4	4	4	4	4	14.1	4	4	4	4	14.0	4	4
	1 0	. 0						2	•		₹9	4	. €.	۲.	M	3	3	13.4	3	, M		m	13.2	٠ رس	~
		 • C		 c c				0	0		4		13.2	8	·	ά.	o.	12.6	~	i	·	~	12.4	Ċ	ς,
	1			 c c				·		÷C	•	*	12.5	~	~	∀ -4	-	11.	-	+	•		11.5	· ·	•
	. c		,	- -				C		٠		C	11.8	•	•	с. С	-	10.7	c	c c	<u> </u>	·	 € ₩	· C	, C
	 			c =								~	11.3	0	_	·	•	A. C.	•	•	•	•	4.4	٠	•
	N X	1 1 1 13 1 		16								ر م									4 5		¥\$		

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.92

WARP

;	2.0	•	?	ċ	0	20.1	6	6	•	•	18.9	90	00	9	18.8	80	80	œ	8	·	18.7	ထ်	30	18.7	œ	· ∞
9	1.9		0	4	+	20.0	.	•	φ.	œ	18.6	80	90	8	18.5	• •	œ	ac.	œ	10	18.4	œ	œ	18.4	00	œ
	1.8		60	7.	•	20.1	•	80	œ	œ	18.3	œ	œ	8	18.1	8	60	80	œ.	œ •	18.0	œ.	8	18.0	œ.	œ
•	1.7	.0	•	•	·	20.3	•	on:	00	8	18.0	7	7	7	17.8	7.		7	۲-	7.	17.7	7.	7	17.6	7	7
1	1.6			0	5	20.7	9	00	œ	7	17.7	7	~	7	17.4	7.	7.	7.	7	7.	17.3	7	7	17.3	`.	7
	# *				0	21.7	•	ac.	7.	~	17.3	r.	7	7	47.0	9	·	•	¢	\$	16.8	¢	•	16.8	·	ç
1	4 .	• 0		•	0	24.8	6	80	7.	7	17.0	9	9	9	16.5	•	•	9	9	6.	16.4	•	•	16.4	•	•
1	1.3	. 0				0		œ	7	. 9	16.6	9	•	÷	16.1	÷	9	5	Š		15.9	5	Š	15.9	ı.	٠.
BET	1.2	0			0	0	9	6	7.	•	16.2	. 9	5	5	15.6	'n	5	r.	5	5	15.3	5.	3	15.3	S.	'n
1	-					0		-	·	9	15.9	5,	ĸ.	S.	15.0	4	4	4	4	4	14.7	4	4	14.7	4	ਾ ਯ
1	0.					0		•	œ	•	15.5	5.	4	4	14.4	4	47	4	4	4	14.1	4	4	14.0	4	4
	0.0							•	9	7.		4		·	3	3	3	3	3	۵.		3	M	13.7	M	m,
1	0 .0						0		ċ	ċ	15.6	4	1	3	13.1	Ĉ	•	\sim	ċ	ċ	12.	ċ	~	12.5	ċ	c.
1	0.7							·		<u>.</u>	1	•	3	?	\sim	~	11.9	•	-	+	-			11.6	•	•
1	Q . U						0.				ċ		à	ς.		+	11.0		ċ	<u>-</u>	0	ċ	Ċ,	10.6	<u>-</u>	·
 	0.5	1					0					.0	4	•	=	c	10.0		•		•	9.5	•	4.	٠	•
OVER STEEN		 											~										(A)			

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.93

15	0 < X C = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 =	1 1 1	1	1	1	1	1	1	86 T	1		1	1	1 1	1	1	1
14	7. 7. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	0.5	9.0	0.7	0	• (= !	1.1	1.2	• I	1.4	2.5	1.6	1.7	00 1	8	2.5
6 0.0	1 4 1 4				, c	•	•	c :	. 0	0	• 0	0	. 0			0	0
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0						0									•	c	9
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0						ت						•	ပ်	-	5	-	23.5
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0						0					0	.	•	M	ċ	ه د ا	•
0. 0. 0. 0. 0. 0. 0. 0. 0. 30.0 21.7 20.2 19.6 19.6 19.4 19.4 19.5 19.0 10. 0. 0. 0. 37.2 19.2 18.0 19.5 18.8 18.6 18.6 18.6 18.6 18.9 19.0 10. 0. 0. 0. 37.2 19.2 18.0 17.7 17.7 17.7 17.7 18.0 18.3 18.5 18.8 18.6 10. 0. 0. 0. 22.5 17.4 16.7 16.7 17.7 17.7 17.7 18.0 18.3 18.5 18.8 18.5 18.8 19.0 19.0 15.9 15.4 15.7 17.7 17.7 17.7 18.0 18.3 18.5 18.8 18.5 18.8 19.1 18.5 18.8 18.5 18.8 18.5 18.8 18.5 18.8 18.5 18.8 18.5 18.8 18.5 18.8 18.5 18.8 18.5 18.8 18.5 18.8 18.5 18.8 18.5 18.8 18.5 18.8 18.5 18.8 18.5 18.8 18.5 18.8 18.5 18.8 18.8			С			C			0	9	9	٠.	-	0	٠ د ر	·	0
0. 0. 0. 0. 0. 37.2 19.2 18.0 18.6 18.6 18.6 18.7 18.9 19.0 19.0 19.0 10. 0. 0. 37.2 19.2 18.0 17.7 17.7 17.8 18.0 18.3 18.5 18.8 18.6 18.0 18.3 18.5 18.8 18.5 18.8 19.0 17.9 17.4 17.7 17.7 17.4 17.7 18.0 18.3 18.5 18.8 19.0 17.9 17.9 17.4 17.7 17.7 17.1 17.5 17.8 18.1 18.5 18.8 19.0 17.8 17.2 17.6 16.1 16.5 16.9 17.3 17.7 18.0 18.3 18.6 11.8 17.8 17.8 17.8 17.8 17.8 18.1 18.5 17.8 17.8 17.8 17.8 17.8 17.8 18.8 17.8 17			· c			. 0			0		ċ	•	· ·	0	a.	0	• •
0. 0. 0. 37.2 19.2 18.0 17.7 17.8 18.0 16.3 18.5 18.8 18.5 19.8 19. 0. 0. 0. 72.5 17.4 16.7 16.8 17.1 17.4 17.7 18.0 18.3 18.5 18.8 1.3 1.5 17.4 16.7 16.8 17.1 17.4 17.7 18.0 18.3 18.6 1.4 10. 16.9 14.5 14.5 14.6 15.7 16.0 16.4 16.7 17.1 17.5 17.8 18.0 18.3 18.6 1.5 11.8 12.1 12.8 13.4 14.0 14.6 15.2 15.8 16.4 16.8 17.2 17.7 18.0 18.0 18.3 1.5 10.4 11.5 12.2 13.0 13.7 14.9 15.4 15.9 16.4 16.8 17.2 17.6 18.0 18.3 1.5 10.4 11.3 12.2 13.9 14.5 15.1 15.7 16.2 16.6 17.1 17.5 17.9 18.2 1.5 10.4 11.3 12.0 12.9 13.7 14.3 15.0 15.5 16.1 16.6 17.1 17.5 17.9 18.2 1.5 10.4 11.0 11.9 12.8 13.6 14.3 15.0 15.5 16.0 16.5 17.0 17.4 17.8 18.2 1.5 10.0 11.9 12.8 13.6 14.2 14.9 15.5 16.0 16.5 17.0 17.4 17.8 18.2 1.5 10.7 11.7 12.6 13.4 14.2 14.8 15.4 16.0 16.5 17.0 17.4 17.8 18.1 1.5 17.7 12.6 13.4 14.1 14.8 15.4 16.0 16.5 16.9 17.4 17.8 18.1 1.5 17.0 17.6 13.4 14.1 14.8 15.4 16.0 16.5 16.9 17.4 17.8 18.1 1.5 17.0 17.6 13.4 14.1 14.8 15.4 16.0 16.5 16.9 17.4 17.8 18.1 1.5 17.0 17.6 13.4 14.1 14.8 15.4 15.9 16.5 16.9 17.3 17.7 18.1 1.5 17.0 17.6 17.6 17.6 17.6 17.6 17.6 17.6 17.6						0	•	ô	0	œ	00	œ.	œ.	œ	6	0	0
0. 0. 0. 0. 0. 72.5 17.4 16.7 16.7 16.8 17.1 17.4 17.7 18.0 18.3 18.6 1.4 10. 16.9 14.5 14.5 17.4 15.7 16.0 16.4 16.7 17.1 17.5 17.8 18.1 18.5 1.4 10. 16.9 14.5 14.8 15.2 15.6 16.1 16.5 16.9 17.3 17.7 18.0 18.4 18.5 11.8 17.1 12.8 13.4 14.0 14.6 15.2 15.8 16.2 16.7 17.1 17.5 17.7 18.0 18.3 1 10.4 11.8 12.1 12.0 13.2 13.9 14.5 15.1 15.7 16.2 16.6 17.1 17.5 17.9 18.3 1 10.1 11.9 12.8 13.7 14.4 15.0 15.6 16.1 16.6 17.1 17.5 17.9 18.2 1 10.1 11.1 12.0 17.9 13.7 14.4 15.0 15.6 16.1 16.6 17.0 17.4 17.8 18.2 1 10.1 11.9 12.8 13.7 14.9 15.5 16.0 16.5 17.0 17.4 17.8 18.2 1 10.9 11.8 12.7 13.5 14.2 14.9 15.5 16.0 16.5 17.0 17.4 17.8 18.2 1 11.8 17.7 11.7 12.6 13.4 14.2 14.8 15.4 16.0 16.5 17.0 17.4 17.8 18.1 1 1.8 17.1 17.1 17.8 18.1 1 1.8 17.1 17.1					C	7	•	œ	7	7 .	7	80	œ	œ	æ	•	•
9 15.3 13.2 13.3 13.8 14.7 14.9 15.4 16.7 17.1 17.5 17.8 18.1 18.5 1.4 11.8 15.2 15.6 16.1 16.5 16.9 17.2 17.7 18.0 18.4 1.8 11.8 12.1 12.8 13.4 14.9 15.4 15.9 16.4 16.8 17.2 17.5 17.7 18.0 18.3 1.9 18.4 11.8 12.1 12.8 13.4 14.0 14.5 15.8 16.2 16.7 17.1 17.5 17.9 18.3 1.0 18.4 11.3 12.2 13.9 14.4 15.0 15.5 16.2 16.0 17.1 17.5 17.9 18.3 1.0 1.0 11.3 12.2 13.9 13.7 14.4 15.0 15.5 16.1 16.6 17.0 17.5 17.9 18.3 1.0 1.0 11.9 12.8 13.7 14.3 15.0 15.5 16.0 16.5 17.0 17.4 17.8 18.2 1.0 9.9 11.0 11.9 12.8 13.7 14.2 14.9 15.5 16.0 16.5 17.0 17.4 17.8 18.2 1.0 9.7 10.9 11.8 12.7 13.5 14.2 14.9 15.5 16.0 16.5 17.0 17.4 17.8 18.1 1.3 9.5 10.7 11.7 12.6 13.4 14.2 14.8 15.4 16.0 16.5 17.0 17.4 17.8 18.1 1.3 9.5 10.7 11.7 12.6 13.4 14.2 14.8 15.4 16.0 16.5 16.9 17.4 17.8 18.1 1.3 9.5 10.5 11.7 12.6 13.4 14.1 14.8 15.4 16.0 16.5 16.9 17.3 17.7 18.1 1.3 9.5 10.6 11.7 12.6 13.4 14.1 14.8 15.4 16.9 16.5 16.9 17.3 17.7 18.1 1.3 9.5 10.6 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.9 17.3 17.7 18.1 1.3 9.5 10.6 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.9 17.3 17.7 18.1 1.3 17.7 17.8 18.1 1.3 17.3 17.7 17.1 18.1 1.3 17.3 17.7 17.1 17.1 18.1 17.8 15.4 15.9 16.9 16.9 17.3 17.7 17.1 17.1 17.8 18.1 17.8 15.4 15.9 16.9 16.9 17.3 17.7 17.1 17.1 17.8 18.1 17.8 17.8 17.8					è	7	•	9	9	7	7.	7	œ	œ	œ.	œ	0
0. 16.9 14.5 14.5 14.8 15.2 15.6 16.1 16.5 16.9 17.3 17.7 18.0 18.4 1 15.3 13.2 13.3 13.8 14.3 14.9 15.4 15.9 16.2 16.2 17.2 17.6 18.0 18.3 1 10.8 11.8 12.4 14.0 15.2 15.8 16.2 16.2 16.7 17.1 17.5 17.9 18.3 1 10.8 11.5 12.2 13.9 14.5 15.1 15.7 16.2 16.6 17.1 17.5 17.9 18.3 1 10.4 11.3 12.2 13.9 14.5 15.1 15.7 16.2 16.6 17.1 17.5 17.9 18.3 1 10.4 11.3 12.2 13.9 14.5 15.1 15.7 16.2 16.6 17.1 17.5 17.9 18.2 1 10.4 11.1 12.0 12.9 13.5 14.3 15.0 15.5 16.1 16.6 17.0 17.4 17.8 18.2 1 1 10.1 11.9 12.8 13.5 14.2 14.9 15.5 16.0 16.5 17.0 17.4 17.8 18.1 1 1 2.0 17.1 17.2 12.6 13.4 14.2 14.8 15.4 16.0 16.5 17.0 17.4 17.8 18.1 1 2 2 1 1.7 12.6 13.4 14.1 14.8 15.4 16.0 16.5 16.9 17.4 17.8 18.1 1 1 2 1 1.7 12.6 13.4 14.1 14.8 15.4 15.9 16.5 16.9 17.3 17.7 18.1 1 1 2 1 1.6 17.6 13.4 14.1 14.8 15.4 15.9 16.5 16.9 17.3 17.7 18.1 1 1 2 1 1.6 17.6 13.4 14.1 14.8 15.4 15.9 16.5 16.9 17.3 17.7 18.1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			C	6	5	'n	3.	\$	9	•	7	7	7	œ	œ	œ	·
15.3 13.2 13.3 13.8 14.3 14.9 15.4 15.9 16.4 16.8 17.2 17.6 18.0 18.3 1 11.8 12.1 12.8 13.4 14.0 14.6 15.2 15.8 16.2 16.7 17.1 17.5 17.9 18.3 1 10.8 11.6 12.4 13.2 13.9 14.5 15.1 15.7 16.2 16.6 17.1 17.5 17.9 18.3 1 10.4 11.3 12.2 13.9 14.5 15.1 15.6 16.1 16.6 17.0 17.5 17.9 18.2 1 1 10.1 11.1 12.0 12.9 13.6 14.4 15.0 15.6 16.1 16.6 17.0 17.5 17.8 18.2 1 1 10.1 11.9 12.8 13.6 14.3 15.0 15.5 16.1 16.6 17.0 17.4 17.8 18.2 1 1 9.8 10.7 10.8 11.8 12.7 13.5 14.2 14.9 15.5 16.0 16.5 17.0 17.4 17.8 18.1 1 2 9.6 10.7 11.7 12.6 13.4 14.2 14.8 15.4 16.0 16.5 16.9 17.4 17.8 18.1 1 1 4.2 11.7 12.6 13.4 14.1 14.8 15.4 16.0 16.5 16.9 17.4 17.8 18.1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			ć	4	4	4	3.	r.	÷	•	8	7.	7.	œ	o c	0 0	•
11.8 12.1 12.8 13.4 14.0 14.6 15.2 15.8 16.7 17.1 17.5 17.9 18.3 1 10.8 11.6 12.4 13.2 13.9 14.5 15.1 15.7 16.2 16.6 17.1 17.5 17.9 18.3 1 10.4 11.3 12.2 13.9 14.5 15.1 15.7 16.2 16.6 17.1 17.5 17.9 18.2 1 1 10.4 11.3 12.2 13.0 13.7 14.4 15.0 15.6 16.1 16.6 17.0 17.5 17.8 18.2 1 1 10.1 11.1 12.0 12.9 13.6 14.3 15.0 15.5 16.1 16.6 17.0 17.4 17.8 18.2 1 1 9.8 10.9 11.8 12.7 13.5 14.9 15.5 16.0 16.5 17.0 17.4 17.8 18.2 1 2 9.7 10.8 11.8 12.7 13.5 14.9 15.5 16.0 16.5 17.0 17.4 17.8 18.1 1 2 9.6 10.7 11.7 12.6 13.4 14.2 14.8 15.4 16.0 16.5 16.9 17.4 17.8 18.1 1 4 9.5 10.7 11.7 12.6 13.4 14.2 14.8 15.4 16.0 16.5 16.9 17.4 17.8 18.1 1 1 9.5 10.6 11.7 12.6 13.4 14.1 14.8 15.4 16.0 16.5 16.9 17.3 17.7 18.1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		·.	*	M :	۳.	4	4	5	5	•	•	7.	. 1.	œ	00		18.9
10.8 11.6 12.4 13.2 13.9 14.5 15.1 15.7 16.2 16.6 17.1 17.5 17.9 18.2 1 10.4 11.3 12.2 13.0 13.7 14.4 15.0 15.6 16.1 16.6 17.0 17.5 17.9 18.2 1 10.1 11.1 12.0 12.9 13.6 14.3 15.0 15.5 16.1 16.6 17.0 17.5 17.8 18.2 1 1 0.9 11.0 11.9 12.8 13.6 14.3 14.9 15.5 16.0 16.5 17.0 17.4 17.8 18.2 1 0.7 10.8 11.8 12.7 13.5 14.2 14.9 15.5 16.0 16.5 17.0 17.4 17.8 18.1 1 0.7 11.7 12.6 13.4 14.2 14.8 15.4 16.0 16.5 16.9 17.4 17.8 18.1 1 0.7 11.7 12.6 13.4 14.2 14.8 15.4 16.0 16.5 16.9 17.4 17.8 18.1 1 1 0.7 11.7 12.6 13.4 14.1 14.8 15.4 16.0 16.5 16.9 17.4 17.8 18.1 1 1 0.8 11.7 12.6 13.4 14.1 14.8 15.4 16.0 16.5 16.9 17.4 17.8 18.1 1 1 0.5 10.6 11.7 12.6 13.4 14.1 14.8 15.4 16.0 16.5 16.9 17.3 17.7 18.1 1 1 0.5 10.6 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.5 16.9 17.3 17.7 18.1 1 1 0.5 11.6 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.5 16.9 17.3 17.7 18.1 1 1 0.5 11.6 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.5 16.9 17.3 17.7 18.1 1 1 0.5 11.6 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.5 16.9 17.3 17.7 18.1 1 1 0.5 11.6 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.5 16.9 17.3 17.7 18.1 1 1 0.5 11.6 11.8 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.5 16.9 17.3 17.7 18.1 1 1 0.5 11.6 11.8 17.8 17.8 15.4 15.9 16.5 16.9 17.3 17.7 18.1 1 1 0.5 11.6 17.8 17.8 17.8 17.8 17.8 17.8 17.8 17.8		-	'n	å	·	4	4	5	5	\$	•	7	/	7	æ	о О	· 60
8 10.4 11.3 12.2 13.0 13.7 14.4 15.0 15.6 16.1 16.6 17.0 17.5 17.8 18.2 1 9 10.1 11.1 12.0 12.9 13.6 14.3 15.0 15.5 16.1 16.6 17.0 17.4 17.8 18.2 1 10.9 11.0 11.9 12.8 13.6 14.2 14.9 15.5 16.0 16.5 17.0 17.4 17.8 18.2 1 9.8 10.9 11.8 12.7 13.5 14.2 14.9 15.5 16.0 16.5 17.0 17.4 17.8 18.1 1 9.7 10.8 11.8 12.7 13.5 14.2 14.8 15.4 16.0 16.5 16.9 17.4 17.8 18.1 1 9.6 10.7 11.7 12.6 13.4 14.2 14.8 15.4 16.0 16.5 16.9 17.4 17.8 18.1 1 9.5 10.7 11.7 12.6 13.4 14.1 14.8 15.4 16.0 16.5 16.9 17.4 17.8 18.1 1 9.5 10.6 11.7 12.6 13.4 14.1 14.8 15.4 16.0 16.5 16.9 17.3 17.7 18.1 1 9.5 10.6 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.5 16.9 17.3 17.7 18.1 1 9.5 10.6 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.5 16.9 17.3 17.7 18.1 1 9.5 10.6 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.4 16.9 17.3 17.7 18.1 1		Ĵ.	•	5	·	·	4	'n	'n	•	•	7	7	7	œ ·	00	00
9 10.1 11.1 12.0 12.9 13.6 14.3 15.0 15.5 16.1 16.6 17.0 17.4 17.8 18.2 1 9 9.9 11.0 11.9 12.8 13.6 14.2 14.9 15.5 16.0 16.5 17.0 17.4 17.8 18.2 1 9 9.8 10.9 11.8 12.7 13.5 14.2 14.9 15.5 16.0 16.5 17.0 17.4 17.8 18.1 1 2 9.7 10.8 11.8 12.7 13.5 14.2 14.9 15.4 16.0 16.5 16.9 17.4 17.8 18.1 1 3 9.6 10.7 11.7 12.6 13.4 14.2 14.8 15.4 16.0 16.5 16.9 17.4 17.8 18.1 1 4 9.5 10.7 11.7 12.6 13.4 14.1 14.8 15.4 16.0 16.5 16.9 17.4 17.8 18.1 1 5 9.5 10.6 11.7 12.6 13.4 14.1 14.8 15.4 16.0 16.5 16.9 17.3 17.7 18.1 1 7 9.5 10.6 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.5 16.9 17.3 17.7 18.1 1 8 9.5 10.6 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.5 16.9 17.3 17.7 18.1 1 9 9.5 10.6 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.5 16.9 17.3 17.7 18.1 1 9 9.5 10.6 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.5 16.9 17.3 17.7 18.1 1 9 9.5 10.6 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.5 16.9 17.3 17.7 18.1 1 9 9.5 10.6 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.5 16.9 17.3 17.7 18.1 1 9 9.5 10.6 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.5 16.9 17.3 17.7 18.1 1		_		<u>.</u>	·	3.	₹.	3.		•	•		-	7	00	a 0	00
9.9 11.0 11.9 12.8 13.6 14.3 14.9 15.5 16.0 16.5 17.0 17.4 17.8 18.2 1 9.8 10.9 11.8 12.7 13.5 14.2 14.9 15.5 16.0 16.5 17.0 17.4 17.8 18.1 1 9.7 10.8 11.8 12.7 13.5 14.2 14.8 15.4 16.0 16.5 16.9 17.4 17.8 18.1 1 9.6 10.7 11.7 12.6 13.4 14.2 14.8 15.4 16.0 16.5 16.9 17.4 17.8 18.1 1 9.5 10.7 11.7 12.6 13.4 14.1 14.8 15.4 16.0 16.5 16.9 17.4 17.8 18.1 1 5 9.5 10.7 11.7 12.6 13.4 14.1 14.8 15.4 16.0 16.5 16.9 17.3 17.7 18.1 1 4.8 15.4 15.9 16.5 16.9 17.3 17.7 18.1 1 7 9.5 10.6 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.5 16.9 17.3 17.7 18.1 1 7 9.5 10.6 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.5 16.9 17.3 17.7 18.1 1 7 9.5 10.6 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.5 16.9 17.3 17.7 18.1 1 7 9.5 10.6 11.6 12.6 13.4 14.1 14.8 15.4 15.9 16.5 16.9 17.3 17.7 18.1 1		<u>.</u>		\sim	ċ	m	4	r.	υ.	•	•	7.			œ	o	x 0
9.8 10.9 11.8 12.7 13.5 14.2 14.9 15.5 16.0 16.5 17.0 17.4 17.8 18.1 1 9.7 10.8 11.8 12.7 13.5 14.2 14.8 15.4 16.0 16.5 16.9 17.4 17.8 18.1 1 9.5 10.7 11.7 12.6 13.4 14.2 14.8 15.4 16.0 16.5 16.9 17.4 17.8 18.1 1 4.9 1.7 11.7 12.6 13.4 14.1 14.8 15.4 16.0 16.5 16.9 17.4 17.8 18.1 1 9.5 10.7 11.7 12.6 13.4 14.1 14.8 15.4 16.0 16.5 16.9 17.4 17.8 18.1 1 9.5 10.6 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.5 16.9 17.3 17.7 18.1 1 7 9.5 10.6 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.5 16.9 17.3 17.7 18.1 1 7 9.5 10.6 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.5 16.9 17.3 17.7 18.1 1 7 9.5 10.6 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.5 16.9 17.3 17.7 18.1 1 7 9.5 10.6 11.7 12.8 14.1 14.8 15.4 15.9 16.5 16.9 17.3 17.7 18.1 1 7 9.5 10.6 11.8 17.3 17.7 18.1 1 7 9.5 10.6 17.3 17.7 18.1 1 7 9.5 10.6 17.8 15.4 15.9 16.4 16.9 17.3 17.7 18.1 1 9.5 10.5 10.5 10.5 17.3 17.7 18.1 1 9.5 10.5 10.5 10.5 10.5 10.5 10.5 10.5 10		•	•		~	3	4	4	5	¢	•	7.	ŗ.	7	α (;	œ	8
9.7 10.8 11.8 12.7 13.5 14.8 15.4 16.0 16.5 16.9 17.4 17.8 18.1 1 3.4 10.7 11.7 12.6 13.4 14.2 14.8 15.4 16.0 15.5 16.9 17.4 17.8 18.1 1 4.5 10.7 11.7 12.5 13.4 14.2 14.8 15.4 16.0 16.5 16.9 17.4 17.8 18.1 1 5.5 10.7 11.7 12.6 13.4 14.1 14.8 15.4 16.0 16.5 16.9 17.4 17.8 18.1 1 5.5 10.6 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.5 16.9 17.3 17.7 18.1 1 7 9.5 10.6 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.5 16.9 17.3 17.7 18.1 1 7 9.5 10.6 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.5 16.9 17.3 17.7 18.1 1 9.5 10.6 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.4 16.9 17.3 17.7 18.1 1 9.5 10.6 11.8 17.8 18.1 1 9.5 10.6 17.3 17.7 18.1 1 9.5 10.6 17.8 17.8 18.1 1 9.5 10.6 17.8 17.8 18.1 1 9.5 10.6 17.8 17.8 18.1 1 9.5 10.6 17.8 17.8 18.1 1 9.5 10.6 17.8 17.8 18.1 1 9.5 10.6 17.8 17.8 18.1 1 9.5 10.6 17.8 17.8 18.1 1 9.5 10.6 17.8 17.8 18.1 1 9.5 10.6 17.8 17.8 18.1 1 9.5 10.6 17.8 17.8 18.1 1 9.5 10.6 17.8 17.8 18.1 1 9.5 10.6 17.8 17.8 18.1 1 9.5 10.6 17.8 17.8 18.1 1 9.5 10.6 17.8 17.8 18.1 1 9.5 10.6 17.8 17.8 18.1 1 9.5 10.6 17.8 17.8 17.8 18.1 1 9.5 10.6 17.8 17.8 17.8 18.1 1 9.5 10.6 17.8 17.8 17.8 17.8 17.8 17.8 17.8 17.8		•	<u>_</u>	7	<i>\</i> :		4	4	5	•	•	7.	7	7	œ	œ	18.8
9.6 in.7 11.7 12.6 13.4 14.2 14.8 15.4 16.0 16.5 16.9 17.4 17.8 18.1 1 9.6 in.7 11.7 12.6 13.4 14.2 14.8 15.4 16.0 16.5 16.9 17.4 17.8 18.1 1 9.5 in.7 11.7 12.6 13.4 14.1 14.8 15.4 16.0 16.5 16.9 17.4 17.8 18.1 1 9.5 in.6 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.5 16.9 17.3 17.7 18.1 1 9.5 in.6 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.5 16.9 17.3 17.7 18.1 1 9.5 in.6 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.4 16.9 17.3 17.7 18.1 1		•	·	-	~	·	4	4	5	ç	•	ċ	7		œ	ac.	00
9.6 10.7 11.7 12.6 13.4 14.2 14.8 15.4 16.0 16.5 16.9 17.4 17.8 18.1 1 9.5 10.7 11.7 12.6 13.4 14.1 14.8 15.4 16.0 16.5 16.9 17.4 17.8 18.1 1 9.5 10.6 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.5 16.9 17.3 17.7 18.1 1 7 9.5 10.6 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.4 16.9 17.3 17.7 18.1 1 9.5 10.6 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.4 16.9 17.3 17.7 18.1 1 9.5 10.6 11.6 12.6 13.4 14.1 14.8 15.4 15.9 16.4 16.9 17.3 17.7 18.1 1 9.5 10.6 11.8 18.1 1 9.5 18.1 1 9.5 10.6 17.8 17.8 18.1 1 9.5 10.6 17.8 17.8 18.1 1 9.5 18.4 18.9 16.4 16.9 17.3 17.7 18.1 1 9.5 10.6 17.8 18.1 1 9.5 17.8 18.1 1 9.5 10.6 17.8 18.1 1 9.5 18.1 1 9.5 18.1 1 9.5 10.6 17.8 17.8 18.1 1 9.5 10.6 17.8 18.1 1 9.5 10.6 17.8 18.1 1 9.5 10.6 17.8 18.1 1 9.5 10.6 17.8 17.8 18.1 1 9.5 10.6 17.8 17.8 18.1 1 9.5 10.6 17.8 17.8 17.8 17.8 17.8 17.8 17.8 17.8		•	<u>_</u>	1.	ς.	, M	4	4	ŝ	•	\$	ċ	7		ж Ж	a D	00
5 9.5 10.7 11.7 12.6 13.4 14.1 14.8 15.4 16.0 16.5 14.9 17.4 17.8 18.1 1.6 9.5 10.6 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.5 16.9 17.3 17.7 18.1 1.7 9.5 10.6 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.4 16.9 17.3 17.7 18.1 1.8 9.5 10.6 11.6 17.6 13.4 14.1 14.8 15.4 15.9 16.4 16.9 17.3 17.7 18.1 1.8 9.5 10.6 11.6 17.6 13.4 14.1 14.8 15.4 15.9 16.4 16.9 17.3 17.7 18.1		•	C	1,	ċ	*	4	4	5	•	•	Ġ	7.	7	φ		œ
6 9.5 10.6 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.5 16.9 17.3 17.7 18.1 17.7 9.5 10.6 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.4 16.9 17.3 17.7 18.1 1.8 4.1 17.1 17.1 17.1 17.1 17.1 17.1 17.1		•	0	•	$\stackrel{\cdot}{\sim}$	~	4	4	'n.	•	•	·	7.	7.	ac.	Œ	60
7 9.5 10.6 11.7 12.6 13.4 14.1 14.8 15.4 15.9 16.4 16.9 17.3 17.7 18.1 1 H		•	ċ	+	ς.	3	4	4	5	5	•	ċ	7		œ	œ.	18.8
H 4.4 10.6 11.6 12.6 13.4 14.1 14.8 15.4 15.9 16.4 16.9 17.3 17.7 18.1		•	0	• • •	٥.	3	4	7	r.	5	•	Ċ	7	7	aL	α.	• 00
		•	·		ά.	۲.	4	4	5	3.	•		r .	۲.	r.	α .	თ



MANAMENT AND COURT BACK OF THE TO COURT IN TOTAL CONTRACT PART FACTOR AND DRIVE

YARN BULK DENSITY = 0.94

1	2.0	•	0 M H D 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.0.0.0	000000 00000	0 0 0 0 0 0 0 0
1			2 V 4 8	4 4 0 0 8	777.00	99999	5 6 6 6 5 5 5 5
1	- ((C)	1000	9 9 9 8 8 4 4 4 4 4	& & & & & & & & & & & & & & & & & & &	& & & & & & & & & & & & & & & & & & &	60 00 00 61 61 61 61
	1.8		0 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	146.7 186.7 186.7 186.5	4 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	11881188	18.2 18.2 18.2
	1.7	٠ ١	0. 23.9 20.8 19.6	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	18.1 18.0 18.0 17.9	17.9 17.9 17.9 17.9	17.8 17.8 17.8 17.8
1	1.6		0 0 28.7 21.4 19.7	18.9 18.4 17.9 17.8	17.7 17.6 17.6 17.5 17.5	2, 71 2, 71 2, 71 2, 71	4444
				4.7.4 4.7.8 7.6	17.2	17.1 17.0 17.0 17.0	17.0 17.0 17.0
	4	0	0 0 0 0 0 0 0 0 0 0 0	18.8 17.5 17.2 17.0	16.9 16.7 16.7	111166	16.5 16.5 16.5 16.5
	1.3	•	C C C C C C C C C C C C C C C C C C C	19.0 17.8 17.2 16.9	116.3 16.3 16.2 16.2 16.2	44446	16.0
3.E	1.2			19.9 17.9 17.0 16.5	15.0 15.9 15.7 15.7	15.6 15.6 15.5 15.5 15.5 15.5	~~~~~ ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
1	•			01 11 11 11 12 12 12 12 14 12 12 12 12 14 12 12 12 12 12 12 12 12 12 12 12 12 12	24444 2000 2000 2000 2000	0.44 0.000	4444
	1.0			190. 17.0 15.9	04444 08604	44444	2.41 2.44 2.24 1.25
(0		00000		4 4 4 8 8 4 0 5 6 7	**************************************	
	· C			0. 0. 26.8 14.7	44444 4444 4444 6444	2000	12.7
i	0.0	• c		0.7 1.0 1.0	120.00	1111000	2
1	. ·	 • •			200000000000000000000000000000000000000	11111111111111111111111111111111111111	16.7 10.7 10.7 10.7
1	υ υ				17.01 111.01 10.55	0 3 3 9 3	
a il F	4 F	1 4 1		0 C C C C C C C C C C C C C C C C C C C			
				0.0	_		

MAXIMUM FILLING COVER FACTORS (KZ) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.95

NYFORD FARRICS

								#± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±		i I			1)) (i
Α ~. Ω Χ	0.5	9.0		6.0	0.0	1.0	1.1	1.2	1.3	4.4	1.5	1.6	1.7	1 44 1	1.9	2.0
1 4	. 0				: C	0.	. 0		0	0		0	. 0	. 0		9.
		c												C	·	3
					•							0	•	·		4
) C		-4 ن	• ভ		0	• •
									· -	,	~	• •	• •	0	6	0
		· .	· .	C	0	. 0			23.3	20.9	20.2	19.9	19.8	19.8	•	20.1
						0	5.	-	6	Ġ	α	0	0	6	0	6
	· C			0	0.	20.8	18.6	18.1	18.0	18.1	18.3	18.5	18.8	19.0	19.3	19.5
				•	œ	7	7.	7	7	7	7	8	œ	œ	6	6
(V		C	5	9	•	•	•	9	7	7	7.	œ	œ	œ	•	6
310 4	0			•	5	5	r.	•	•	7	7.	7	80	6 0	œ	6
	0	m		4	•	5	'n	9	•	17.0	17.4	17.8	18.2	18.5	18.8	19.1
	?	ċ	8	M	4	4	'n	9	\$	9	7	7	ю Э	œ	oc.	0.
		11.9		13.4		•	15.3	15.8	16.4	•	7.	7	œ	œ	œ	6
	0		$\dot{\circ}$	M	%	4	٠.	5.	·	·	۲.	`	œ	о Ф	ď	·
	•	•	· .	~	8	4	'n.	ر. •	ċ	•	7.	7	œ	no on	oc.	·
	•	•	~	~	m	4	5	5.	Ġ	9	7	7.	œ	x 0	œ	0
	o. 0.	11.0	12.0	15.9	13.7	14.4	15.0	15.6	16.2	16.7	17.1	17.6	18.0	18.3	18.7	19.0
	•	<u>-</u>	•	~	M.	प्र	5	5.		. 9	7	-	α.	00	80	٠ •
	•	·	• •	~	3.	4	5	5	·	. 9		7	6 0	œ	œ	6
	•	•	-	Ċ	~	4	5.	5	9	9	7		7	œ.	œ	·
35	•	ċ	•	$\dot{\sim}$	ъ.	4	5.	5	ç	9	7		١	00	8	6
	•	<u>_</u>	~	ċ	∾	4	4	3	•	6.	·	7	7	œ	œ.	6
	4.0	10.7	11.8	12.7	13.5	14.3	14.9	15.6	16.1	16.6	17.1	17.5	17.9	18.3	18.7	19.0
	•	Ċ	•	ς.	~	4	4	٠.	ç	9	7	•	′	œ	ص ص	·



YARN BULK DENSITY = 0.96

WARD

という	!					1	((9E	1	1	i	1		1		1
7 X 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	0.5	9.0	6.7	0.8	0.	0		1.2	1.3	1.4	4.5		1.7	1.8	1.9	
4		· ·					0		•	0	0	.0	0	o °	ć	0.
														0	C	0
												0	•	Š	7	4
	O	C				0	C	0.	0.	0	0	36.4	25.4	23.5	22.3	21.9
									0			8	•	;	0	0
			0	.0	0.					-	ċ	0	0	0	0	0
	0.	·			c:	•	8	+	6	6	•	6	0	0.	0	•
						+	6	8	œ	80	8	<u>.</u>	00	Ç,	6	•
				•	6	7.	7	7.	7.	7	œ	8	8	8	0	6
			0	7.		16.3	16.5	16.8	17.1	17.5	17.8	18.2	18.5	18.8	19.1	19.4
	.0		15.7		•	ις\	ċ	•	÷	7.	7	œ	œ	œ	6	0
25		4	K	4	4	5.	Ś	9	•	7	7.	7	œ	80	ac	6
	\sim	Ċ	13,2	13.8	14.4	15.0	15.5	16.1	16.5	17.0	17.4	17.8	18.2	18.6	10.9	19.5
	•	~	\sim	~	4	4.	5.	5.	ċ	9	7	7 •	8	œ	6 0	6
	=	÷	~	3	4.	4	υ.	r.	•	9	7.	7.	œ	œ	œ	6
	10.4	11.4	`		₩.	4	5.	5	·	•	7		œ	ď	œ	6
	C	-	·	M:	~	4	5	5	•	•	7	7.	30	30	αC.	0
	10.0	11.1	12.1	13.0	13.P	14.5	15.1	15.7	16.3	16.8	17.2	17.7	, A . 1	18.4	18.8	19.1
	ż		$\dot{\sim}$	'n	3	4	'n	5	•	ŝ	٠.	۲,	œ	œ,	œ	· •
	٠	·	ċ		(M	•	5	5	ċ	•	7	~	œ	œ	ď	6
	•	ċ	•	$\stackrel{\circ}{\sim}$, ·	4	5	5	9	9	7		œ	no On	œ.	•
35	•	· C	-	~	₩;	4	r.	5	•	•		~	ac	L.	ar.	·
92	3	. n	11.9	12.A	13.6	14.4	15.0	15.6	16.2	16.7	17.2	17.6	18.3	18.4	18.8	19.1
	•	٠	-	c·	×;	4	5	5	•	•	7	~	œ	œ (an i	6
	•	<u>-</u>		į.	٠,	٠	٦.	ις.	ç	ç	۲.	`	œ	or.	œ.	·

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN RULK DENSITY = 0.97

1 3 0 1	1.9	0.0	0	8.5	2.7 22	1.0 21	0.2 20	9.8 20	9.5 19.	6.3 19	9.2 19	9.1 19	9.0 19	.9.0 19.	9.0 19	8.9 19	8.9 19	8.9 19	.8.9 19.	8.9 19	8.9 19	8.9 19	8.9 19	8.9 19.	8.9 19	8.9.19
(80	0		. 0	3.7		0.5	9.6	19,3 1	9.1	8.9	8.8	8.7	18.7 1	8,6	8.6	9.6	9.6	18.5 1	8.5	ф.	8.5	6.5	18.5 1	8.5	8.5
		. 0			9		0	0	19.0	œ	œ	œ	00	18.3	.	αĈ	σc·	œ	18.2	œ	3 0	x 0	œ.	18.1	œ	œ
•	9 1	0 .		0	6			6	18.8	9	ж Э	ග	00	17.9	7	7	7	7	17.8	7	7	7.	7	17.7	7	7.
1	. 5			· C	C		c	6	18.6	80	-	7		17.5		1	7	7	17.3	7	7	7	7	17.3	7	۲.
	6	0				0		6	18.2	7.	7	7	7	17.1	7.	7	v	•	16.9	Ġ,	.	Ġ	9	16.8		ç
	i P°) • •	0		٠.		0		0	18.4		7	7	•	16.6	ç	Š	•	·	16.4	•	Ġ	9	\$	16.3	9	•
96	1.2	0						+→	18.6	7	•	·	9	16.2	9	\$	S.	5.	15.8	z,	5.	5	ŗ.	15.7	ů.	5
	; ; • ; ; • ;	0		c.				4	19.4	1	\$	ė	5	15.6	υ.	r.	5.	r.	15.2	5.	ιζ.	r.	Ŗ.	15.1	5.	5
	1.0			0			ŋ.	ပ	23.2	7.	•	5	5.	15.1	্ ব	4	4	4	14.6	4	4	4	4	14.4	4	4
	0.0	1							•	0	9	•	4	4	4	4	14.0	8	∞	3	3	13,7	3	13.7	۵.	~ ;
	80						<u>-</u>		•	•	•		14.4	M	×.	*	ı.c	1 00	13.0	۴,	٠.	~	~	12.9	$\dot{\sim}$	ċ
							<u>.</u>		ŋ.		-		4	13.5	ς.	?	-	C)	12.1	ζ.	5	~	~	11.9		-
		 • =					٠ ت		٠.				4	0.	ά.	<u>.</u>	7.	•	11.2	<u>,</u>	<u>.</u>	÷	ċ	10.9	c.	٠ د
	0.5						=		<u></u>			=	•	₹ :	· 	•	111.4	-	\subset	,	•	т •	•	~ . 5	•	•
	Y Y	1 4																4.0						36		



MAXIMIM FILLING COVER FACTORS [KZ] IN TERMS OF WARP JOVER FACTOR AND BETA

YARN BULK DENSITY = 0.98

NAFORD FABRICS

	1	1		1		1									1	1
X - 1 - x	= .	0.0	n . 7	6 0	0.0	1.0		1		1 . 4	1.5	1.6	1.7	1.8	1.9	2.0
•	• = 	 • •	•	• C	0	0 .	 • C		· ·	0.				6	. 0	0
ď																•
١ ٧					-										· c	, u
0 -					-						- (•		•	• • M	` c
,											=	, 5,	. (· .	·
ac d	.a. 6	c (c		. 0				100		26.6	28.5	22.00	21.5	21.2	21.1
.			c						_	•	•	· -		·	•	
0	0.					c		ς.	0	φ.	c.	0	0	ò	•	D
-						Ď.	0	α.	œ	00	σc	·	0	6	0	6
~				•	0	æ	~	7.	7	æ	α:	00	80	6	0	6
8			C	œ	•	6	×C.	7	7.	7	œ	80	60	0	•	·
•	· c	C	16.7	15.6	15.4	15.9	16.3	16.7	17.1	17.5	17.9	18.2	18.6	18.9	19.2	19.5
0		٠.	4	4	5	3	5	¢	•	7.	-	00	αΩ •	00	0	•
.0	•	٨.	8	4	4	ñ.	5	•	•	7.	۲.	හ	œ.	œ	•	٠ م
7	11.7		13.1	13.7	4	15.0	15.6	16.1	•	17.1	17.6	18.0	18.4	18.7	19.1	·
•	•	-	٠ د	₩	4	• च	5	•		7.	7	7 .	œ	9	•	•
•	e		ò	•	14.1	4	ĸ.	· ·	•	7	1	7	œ	80	6	19.3
-	•	-	~	M	4	•	5	5	6	7	7	,	ac.	œ	•	6
1	•		ζ.	~	~	4	5	5	ç	7.	7	7	φ	œ	6	•
~	Ç	-	0	۲.	₩.	4	r.	٠.	\$		7	7.	α.	a Ci	•	0.
~)			12.1	13.0	13.8	14.6	15.2	15.8	16.4	16.9	17.4	17.8	18.2	18.6	19.0	6
4		•	÷	M	ن. •	4	5	5	·c	•	7	7	œ.	œ	•	
r.	•	-	~		M)	4	5.	'n	ć	•	7	7	σc.	ж Э	•	6
c	a.	0.0	12.0	12.9	13.8	14.5	15.2	15.8	16.4	16.9	17.4	17.8	18.2	18.6	10.0	19.3
7	•	Ċ	$\dot{\sim}$	å	· ~	4	۲.	5,	•	9	7	7	oc.	.	Ċ	· ·
3 0	•	c.	?	·	•	4	5	5.	œ.		۲.	7	œ.	• •	œ.	6

MAZIMUM FILLING COVER FACTORS [KZ] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 0.99

						<u> </u>	OXFORI	D FAR	R I CS								
								8E7				ı		(•
A F	1 = 1 •	C	0.7	9.	0.9	1.0	1.1	1.2	1 to 1	47 • •	2 . 5	1.6		1 . 1	4.9	2.0	•
1 4 4	 • ================================			1	I -		· -						•			0.	
															•	•	
16													ċ	ċ	ċ	9	
17											c.	0	•	4	·	· 2	
& &	: : :: c	 c c					 c c		30.7	23.1	28.2 21.5	23.7 20.8	20.3	21.7	21.4	21.3	
0.0		C				•	•	ام	·	0	0	6	0	6	0	0	
2 7					0	28.7	20.5	19.2	18.9	18.8	18.9	19.1	19.3	19.5	19.8	20.0	
25					~	00	ď	7.	æ	a 0	œ	8	6	6	•	6	
C			c			•	•	7	7	7.	œ.	œ	œ	6	6	0	
7 314				5.	Ċ.	•	•	ċ	7.	/	α.	œ	œ	œ.	•	·	
70		3	4	4	5.	5.	Ġ	ć	7.	7	~	30	œ	ъ	•	0	
90	4	» ;	3	4	4	S.	٠.	9	ç	7	7	80	œ	œ (•	٠ ن	
70	~	ά.	ا د د	٠ ا	4.	۳.	ι.	Ġ,	ė.	~ ,	, P	න ා	00 0	œ a	· ·))	
w 0.	10.	11.6	12,0	12.0	14.4	14.8	15.5	16.1	16.6	17.1	17.6	18.0	18.4	90 0	19.1	4.6	
0	=		,	1 2	4	4	r.	\$	\$	7	7	න •	σc	æ.	0	٠,	
, ~ ;	<u> </u>		~	M,	4	4	r.	ć	·ċ	~	7	œ	œ	ó	6	0.	
32	10.1	11.2	12.2	13.1	13.9	14.7	15.3	16.0	16.5	0 • / 🔭	17.5	17.9	18.3	18.7	19.1	19.4	
٦.	=	÷	?	۲.	*	4	Š	5	ć	`	7	~	œ	o	•	6	
4.	*		ς.	۴,	%	4	r.	'n	ç	,	7.		• ©	0 0	•	3 ^	
45	٠	•	~		₩;	4	<u>د</u> ي	7.	•	7	7	7	œ	œ	0	9.	
36	т Э	,	12.1	13.0	13.R	14.6	15.3	15.9	16.5	17.0	17.5	17.9	18.3	18,7	19,1	19.4	
	•	<u>.</u> .	?	~	~ 1	4	<u>.</u>	5	•	i~ r	۲.	۲.	œ i	٠ د	0	· ·	
	•		۲.	M ,	~	4	·	٦.	ċ	7	•	۲.	α.	ν. γ	c.	·	



MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF JAMP COVER FACTOR AND BETA

YARN BULK DENSITY = 1,00

OXFORD FARRICS

	1 =	t	1	30		0.7	1.1	1.2	1.3	1.4	1.5	1 +-4	1.7	1.8	6.1	-
1	1 : :	i .		1	.0	•		0.		0	•	0 .				•
															c	•
							· C	0		0		0	0	0	35.5	1
			· c									0	-	5	M	•
									0		0		•	•	-	, H
	. 0	·	0	c	ე.	0		0	37.2	23.8	21.8		ပ	0	•	0
		c					•	4		0	0	0	0	ŋ.	C	0
						0	•	0	0	0	0	0	0	·	6	0
					4	19.1	90	18,1	18.2	18.4	18.6	18.9	10.1	19.4	19.7	19.
				-	7.	7	~	7	7.	8	αC	80	8	0	o.	0
	0	c	18.3	16.2	16.0	•		•	7	7	œ	œ	œ	0	0	0
		¢	4	4	n,	5	ć	9	7.	ŕ	~	:າ	c C)	0	0	0,
	5.	K	8	4	4	iC.	Š	•	ç	7.	7.	о О	8	·	•	٠ ه
	2,1	ς.	13.2	13.9	14.6	15.2	15.8	16.3	16.8	17.3	17.8	18.2	18.6	18.9	19.3	19.6
	•	ς.	?	~	4	5	ς,	•	•	7.	7.	œ	œ	œ	•	6
	7.0.x	11.7	ζ.	%	•	4	•	•	vc.	7	7.	av	or,	າເ	6	·
	·	,,,	~	P3	4	4	5.	ć	•	7		30	œ	90	0	6
			2	۲,	4	4	٠.	•	•	7.	7.	æ	œ	ъ	6	6
			7	٠,	4	4	5	•	6.	,	<u>,</u>	œ,	œ	œ	•	Φ,
	<u>-</u>	_		٠,	4	14.7	15.4	16.9	16.6	17.1	17.6	18.0	18.4	4.8	19.2	19.
	· · · · · · · · · · · · · · · · · · ·			13.1	•	4	r.	ć	· v	7		• •	œ	œ	•	0
	•	•	~	~	~	4	5	•	ć	`	7	c	ar:	or.	0	()
	J.	-	12.1	13.1	13.9	14.7	7.	16.0	16.5	17.1	17.5	18.0	1 D , L.	1.30 x	19.1	19.5
	•		$\dot{\sim}$	*	\$.	4	·	ċ	ç	7	7	o.	a.	æ.	·	ው
														,		



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARF COVER FACTOR AND BETA

YARN BULK DENSITY =1.36

MAXIMUM FILLING COVER FACTORS (KZ) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 1.48

CIXFORD FABRICS

TAPP

	2	6.1.8	0,000 0 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0 0,000 0	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	6 6 6 8 8 8 9 9 9 9 8 9 8 9 9 9 9 9 9 9	80.800 80.800 80.700 80.700	23.7 23.7 23.7
	4.9		8888 888 888 888 888 888 888 888 888 8	0.0000 4.4888 4.4987	<i></i>	6 0 0 0 0 0 6 6 6 6 6 6 6 6 6 6 6 6 6 6	23.3
1	4.0	00	40000 6000 7000 7000 7000	くののののようぎょうよるらずらはるるする	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	00000 00000 00000	22.0
(" 		2222 2223 2533 2533		22222 22223 2223 3223 323 333 333 333 3	00000 00000 00000	4 4 4
1	1.6		0.02.0 20.0 25.0 25.0	2223 2223 223 223 223 233 233 233 233 2	22222	2222 2220 2220 2220 21.9	21.9 21.9 21.9
	4.5		888 888 86.4 86.4	00000 00000 00000	221.9 221.9 21.7 21.5	00000 4444 77444	21.4
(00000	22222	4.0.1.0.	00000 00000 00000	20.8 20.8 20.8
	1.3	90		2222 2422 2422 2422 2432 2432 2432 2432	000000	88.00 80 80 80 80 80 80 80 80 80 80 80 80 8	20.2
RET	 	000		25.3 22.9 221.8 201.1	200.00	19.7 19.6 19.6 19.5	10.5
!			00000	30.73 20.73 20.88	10000 10000 10000 10000		18.7 18.7 18.7
1	v=1 		00000	22.5 22.5 20.8 19.8	19.3 18.6 18.6 18.4	181 181 181 180 181 180	17.9
	・ 少 : つ : ご !			0. 26.0 21.3	18.8 18.3 17.9 17.7	4.71 17.0 1.71 1.71	17.r 17.n 17.n
	0 . 8			0000	18.77 17.77 18.99	4 K C H H H	14.0 14.0
(C)	60000	0.00 0.4 0.1	18.7 15.5 15.0	4 % 4 5 E	4 4 4 2 X T
!	9.1	ı			25.4 17.8 16.0 15.7	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	6 4 5 K
					0 C 4 4 C	4 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	7.7.7. 7.7.7.
1 to 1	4	 00 3	00000 01084				4 4 4 0 44 57

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY = 1.50

OXFORD FABRICS

WARP

12.4 14.1 15.5 16.3 17.3 18.2 19.0 19.7 12.4 13.9 15.2 16.2 17.2 18.1 18.9 19.7



MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =2.00

1	0 :		•	•	•	0	•		•	•	. 6	•	•	•	•		•	•	•	•		•	•	•	9	•
•	2			u	L 16.	32	₩)	M	~	28	N	~	N	28	N	~	2	2	27	2	2	~	~	~	20,	V
•	1.9	¢	•	•		33.8	-		0	•0	28.3	•		~	7	7	7	7.	27.3	7	7.	7.	7.	7.	27.1	•
i	4.8					36.3	2	0	0	28.5	00		7		7	7		9	26.8	9	•	9	9	9	26.6	C
1	1.7		C	o c	> c	45.2	(برا		6	28.4	7.	7.	7	56.9	. 9	9	9	9	26.3	. 9	9	9	9	•	26.1	ċ
	1.6	1					œ	2	6	28.4	7.		•			Ġ	9	5	25.8	5.	3	5.	Š	S.	25.5	
	1.5						0	L.	0	28.6	7.	26.8	\$	•	ς.	5	5	5	25.2	5	5	r.	π.	5	24.9	4
	4 1						0	00	2	29.5	7		•	_	ic.	5	4	4	24.6	4	4	4	4	4	24.3	t
	1.3	i e							3	31.1	60		5		4	4	4	4	23.9	3	3	₩.	8	٠ س	23.5	·
9 ET	1.2) 					C		0	•	0	7	5	24.8	4	3		×	23.5	3	8	~	d	~	22.8	·
1	4									6		σc.	•		3	113	3	~	25.5	2	5	~	ċ	~	21.0	•
(1.0						0				٠.		7	•	(م	2	2	~		- !	-		-	• ₁-ŧ	21.0	-
	6.0	i					0					0.	7	9	3	•		+	0.	0	•	0	0	0	20.0	
											0		<u>.</u>	œ	5	25.8		·	<u>.</u>	°	19.4	6	·	~		·
1	0.7	i c									0.	0			0		+	=	19.3	œ	•	œ.	7.	7	17.6	•
! !	9.6	! ! c										٠					7	ċ	œ.	7	17.3	·	ċ	÷.	16.2	·
 	6.0	; ;				· ·					0.	0.				0.		0	0	~	10.4	·.	č.	4	14.7	t
C A P P P P P P P P P P P P P P P P P P	ו צנ											30		*												

YARN BULK DENSITY =2,36

4.5 6.5 <th>2 u</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>RE→</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>	2 u								RE→								
4	AC 10		9 - 1		0.8	0.0	. 0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1 4 6	1 5	
10	240	=	 C		; !			 •		9 .	0 .		0.	. 0		9	52.5
1. 1. 1. 1. 1. 1. 1. 1.											0	C		C	0	₩.	0
10											C		C	←	0	•	3
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0											0	c	4	7	Š	4	3
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0											0	-	3	4	3	~	5
1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1											80	4	ò	2	i	8	?
1									0	ç	2	•	-	-	-		+4
2 0. 0. 0. 0. 0. 0. 0. 33.8 29.6 28.7 28.4 29.5 29.7 30.0 30.3 30.6 31. 3. 0. 0. 0. 0. 33.8 28.7 27.7 27.6 27.8 28.9 29.3 29.6 30.0 30.4 30. 0. 0. 0. 35.9 27.8 28.7 27.7 27.6 27.8 28.9 29.9 29.4 29.8 30.2 30. 0. 0. 36.9 27.8 28.7 28.8 27.2 27.7 28.9 28.9 29.4 29.8 30.2 30. 0. 0. 27.2 25.6 25.5 25.9 26.3 27.9 28.5 29.0 29.4 29.9 30. 0. 0. 27.2 25.6 25.5 25.9 26.3 27.9 28.5 29.0 29.4 29.9 30. 0. 0. 27.2 25.6 23.7 24.8 25.7 26.3 27.9 28.5 29.0 29.4 29.9 30. 0. 27.2 27.8 28.8 25.7 24.8 25.7 26.3 27.0 27.8 28.3 29.8 30.3 30. 0. 27.2 27.8 28.8 23.7 24.7 25.4 26.2 27.8 28.3 28.8 29.3 29.8 30. 0. 27.2 27.8 28.8 23.7 24.7 25.4 26.2 26.9 27.5 28.1 28.7 29.2 29.7 30. 23.1 20.8 21.1 21.2 22.8 23.4 24.3 25.1 25.9 26.6 27.3 28.1 28.7 29.2 29.7 30. 14.1 19.7 20.5 21.5 22.5 23.2 24.7 25.1 25.9 26.6 27.3 28.8 29.1 29.6 30. 16.1 14.1 19.7 20.8 21.9 23.1 24.1 24.9 25.8 26.5 27.2 27.9 28.5 29.1 29.6 30. 16.1 14.1 17.7 19.2 20.6 21.8 23.8 24.8 25.8 26.5 27.2 27.9 28.8 29.1 29.6 30. 16.1 11.1 17.7 19.2 20.5 21.7 22.8 23.8 24.8 25.6 26.4 27.1 27.8 28.4 29.0 29.5 30. 17.4 17.5 19.1 20.2 20.5 21.7 22.8 23.8 24.8 25.6 26.3 27.1 27.8 28.4 29.0 29.5 30. 17.4 17.7 19.2 20.5 21.7 22.8 23.8 24.8 25.6 26.3 27.1 27.7 28.4 28.9 29.5 30. 17.4 17.7 19.2 20.5 21.7 22.8 23.8 24.8 25.6 26.3 27.1 27.7 28.3 28.9 29.5 30. 17.4 17.7 17.4 19.1 20.4 21.7 22.8 23.8 24.8 25.6 26.3 27.1 27.7 28.3 28.9 29.5 30. 17.4 17.7 19.2 20.5 21.7 22.8 23.8 24.8 25.6 26.3 27.1 27.7 28.3 28.9 29.5 30. 18.1 17.7 17.4 19.1 20.2 20.5 21.7 22.7 23.7 24.7 25.6 26.3 27.1 27.7 28.3 28.9 29.5 30. 19.2 17.4 19.7 20.8 23.8 24.8 25.6 26.3 27.1 27.7 28.3 28.9 29.5 30. 20.2 20.2 20.2 20.2 20.2 20.2 20.2								ć	4	+	0	6	0	0	0	0	-
9 0. 0. 0. 0. 0. 33.8 28.7 27.7 27.6 27.8 28.9 29.3 29.6 30.0 30.4 30.0 0. 0. 0. 0. 33.8 28.7 27.7 27.6 27.8 28.1 28.5 28.9 29.4 29.8 30.2 30.2 30.0 0. 0. 0. 0. 36.9 27.8 28.7 27.7 28.2 28.7 29.4 29.6 30.2 30.2 30.0 0. 0. 0. 0. 37.2 25.6 25.5 25.9 26.3 26.9 27.7 28.2 28.7 29.1 29.6 30.1 30.0 27.0 0. 0. 0. 27.2 24.5 24.4 24.8 25.3 25.9 26.6 27.2 27.8 28.3 28.9 29.1 29.6 30.1 30.0 0. 29.7 23.6 23.3 23.7 24.3 25.0 26.6 27.2 27.8 28.3 28.9 29.1 29.6 30.1 30.0 0. 29.9 20.0 29.4 29.9 30.0 0. 29.7 20.0 27.6 28.2 26.9 27.4 28.0 28.5 29.0 29.9 30.0 0. 29.7 20.0 27.6 28.2 28.8 28.8 29.3 29.8 30.0 0. 29.7 20.0 27.4 24.8 25.3 25.0 25.7 26.3 27.0 27.6 28.2 28.8 29.3 29.8 30.0 0. 29.9 27.0 27.6 28.2 28.8 29.1 29.9 30.0 29.1 29.2 29.1 29.2 29.1 29.2 29.1 29.2 29.1 29.2 29.2							0	4	0	6	C-	0	· •	c	0		+
10. 0. 0. 0. a. 33.8 28.7 27.7 27.6 27.8 28.1 28.5 28.9 29.4 29.8 30.2 30.3 30.8 10. 0. a. 36.9 27.8 26.7 26.6 26.8 27.2 27.7 28.2 28.7 29.1 29.6 30.1 30.2 27.8 26.7 26.5 26.9 27.4 27.9 28.5 29.0 29.4 29.9 30.1 30.2 a. a. 27.2 24.5 24.4 24.8 25.3 26.9 27.4 27.9 28.3 28.9 29.4 29.9 30.1 a. a. a. 27.2 24.5 24.4 24.8 25.3 26.9 27.4 27.8 28.3 28.9 29.4 29.9 30.1 a.							3	0	œ	8	30	Œ	6	6	0	0	0
10. 10. 10. 36.9 27.8 26.7 26.6 26.8 27.2 27.7 28.2 28.7 29.1 29.6 30.1 30.2 20.0 10. 10. 27.2 25.6 25.5 25.9 26.3 26.9 27.4 27.9 28.5 29.0 29.5 29.9 30.0 10. 27.2 24.5 24.4 24.8 25.3 25.9 26.5 27.2 27.8 28.3 28.9 29.4 29.9 30.0 10. 27.2 24.5 24.4 24.8 25.3 25.9 26.3 27.0 27.6 28.3 28.9 29.4 29.9 30.0 10. 29.7 23.6 23.3 23.7 24.3 25.0 25.7 26.3 27.0 27.6 28.2 28.8 29.3 29.8 30.0 10. 29.7 23.6 23.1 23.9 24.7 25.4 26.2 26.9 27.5 28.1 28.7 29.2 29.7 30.0 10. 20.9 27.1 20.9 22.8 23.6 24.5 25.3 26.0 26.7 27.4 28.0 28.6 29.1 29.7 30.0 11.5 19.7 20.5 21.5 22.5 23.4 24.3 25.1 25.9 26.6 27.3 28.0 28.6 29.1 29.7 30.0 29.1 14.1 14.5 19.9 21.0 22.1 23.1 24.1 24.9 25.8 26.6 27.3 27.9 28.5 29.1 29.6 30.0 29.6 30.0 29.6 30.0 29.6 30.0 29.6 30.0 29.6 30.0 29.6 30.0 29.6 20.0 29.6 30.0 29.6 20.0 29.0 29.0 29.0 29.0 29.0 29.0 29.0						3	œ	7.	7	7	•	Œ.	œ	6	0	0	0
6 (i) (ii) (iii) (iii) (iiii) (iiiiiiiiii					ć	7.	9	6	•		7	σ.	œ	6	•	c	0
0. 0. 7.2 24.5 24.4 24.8 25.3 25.9 26.6 27.2 27.8 28.3 28.9 29.4 29.9 30. 0. 29.7 23.6 23.3 23.7 24.3 25.0 25.7 26.3 27.0 27.6 28.2 28.8 29.3 29.8 30. 0. 29.7 23.6 23.1 23.9 24.7 25.4 26.2 26.9 27.5 28.1 28.7 29.2 29.7 30. 25.1 20.8 21.1 21.9 22.8 23.6 24.5 25.3 26.0 26.7 27.4 28.0 28.6 29.1 29.7 30. 19.6 19.7 20.5 21.5 22.5 23.4 24.3 25.1 25.9 26.6 27.3 28.0 28.6 29.1 29.7 30. 21.1 19.0 20.1 21.9 22.8 23.6 24.2 25.0 25.8 26.6 27.3 27.9 28.5 29.1 29.5 30. 20.1 21.0 20.1 21.9 22.9 23.2 24.2 25.0 25.8 26.6 27.3 27.9 28.5 29.1 29.6 30. 20.1 21.4 12.9 19.3 20.6 21.2 21.9 23.0 24.8 25.5 26.4 27.1 27.8 28.4 29.0 29.5 30. 29.5 21.1 17.7 19.2 20.5 21.7 22.8 23.8 24.8 25.6 26.4 27.1 27.8 28.4 29.0 29.5 30. 29.5 30. 29.1 20.1 20.1 20.1 20.1 20.1 20.1 20.1 20					7	5	5	Š	9	\$	7.	r.	œ	6	6	0	0
0. 29.7 23.6 23.3 23.7 24.3 25.0 25.7 26.3 27.0 27.6 28.2 28.8 29.3 29.8 30.0 20.0 22.9 23.1 23.9 24.7 25.4 26.2 26.9 27.5 28.1 28.7 29.2 29.7 30.0 20.0 22.0 22.4 23.1 23.9 24.7 25.4 26.2 26.9 27.5 28.1 28.7 29.2 29.7 30.0 23.1 20.8 21.1 21.9 22.8 23.6 24.5 25.3 26.0 26.7 27.4 28.0 28.6 29.1 29.7 30.1 29.6 19.7 20.5 21.5 22.5 23.4 24.3 25.1 25.9 26.6 27.3 27.9 28.5 29.1 29.6 30.3 27.1 27.8 29.0 29.6 30.0 20.1 29.2 20.2 23.2 24.2 25.0 25.8 26.6 27.3 27.9 28.5 29.1 29.6 30.0 20.2 20.2 20.2 20.2 20.2 20.2 20.2				7.	4	4	4	5.	5	•	7 •	7.	80	œ	•	•	0
0. 25.9 27.0 27.4 23.1 23.9 24.7 25.4 26.2 26.9 27.5 28.1 28.7 29.2 29.7 30.1 25.1 20.8 21.1 21.9 22.8 23.6 24.5 25.3 26.0 26.8 27.3 28.0 28.6 29.1 29.7 30.1 19.0 20.1 21.2 22.5 23.4 24.3 25.1 25.9 26.6 27.3 28.0 28.5 29.1 29.6 30.3 17.4 18.5 19.8 21.0 22.1 23.1 24.2 25.0 25.8 26.6 27.3 27.9 28.5 29.1 29.6 30.3 17.4 18.5 19.9 21.9 23.1 24.1 24.9 25.8 26.5 27.2 27.9 28.5 29.1 29.6 30.4 16.7 18.2 19.5 20.6 21.9 23.0 24.0 24.8 25.6 26.4 27.1 27.8 28.4 29.0 29.5 30.4 16.1 17.7 19.2 20.5 21.7 22.8 23.8 24.8 25.6 26.4 27.1 27.8 28.4 29.0 29.5 30.4 15.9 17.5 19.1 20.4 21.7 22.8 23.8 24.8 25.6 26.4 27.1 27.8 28.4 29.0 29.5 30.4 15.9 17.5 19.1 20.4 21.7 22.8 23.8 24.7 25.6 26.3 27.1 27.7 28.4 28.9 29.5 30.4 15.7 17.4 19.0 20.4 21.4 22.7 23.7 24.7 25.5 26.3 27.0 27.7 28.3 28.9 29.5 30.4 15.7 17.4 19.0 20.4 21.4 22.7 23.7 24.7 25.5 26.3 27.0 27.7 28.3 28.9 29.5 30.4 29.7 17.7 28.3 28.9 29.5 30.4 29.7 27.7 28.3 28.9 29.5 30.4 29.7 27.7 28.3 28.9 29.5 30.4 29.7 27.7 28.3 27.0 27.7 28.3 28.9 29.5 30.4 29.5 30.4 29.7 27.7 28.3 27.0 27.7 28.3 27.0 27.7 28.3 27.0 27.7 28.3 27.0 27.7 28.3 27.0 27.7 28.3 27.0 27.7 28.3 27.0 27.7 28.3 27.0 27.7 28.3 27.0 27.5 27.5 27.5 27.7 28.3 27.0 27.5 27.5 27.5 27.5 27.5 27.5 27.5 27.5			· •	3	M	3	4	5	5	•	~	7.	80	8	6	•	0
23.1 20.8 21.1 21.9 22.8 23.6 24.5 25.3 26.0 26.7 27.4 28.0 28.6 29.1 29.7 30.1 19.6 19.7 20.5 21.5 22.5 23.4 24.3 25.1 25.9 26.6 27.3 28.0 28.5 29.1 29.6 30.1 18.1 19.0 20.1 21.2 22.2 23.2 24.2 25.0 25.8 26.6 27.3 27.9 28.5 29.1 29.6 30.1 17.4 18.5 19.8 21.0 22.1 23.1 24.1 24.9 25.8 26.5 27.2 27.9 28.5 29.0 29.6 30.1 14.4 17.9 19.2 20.8 21.9 23.0 24.0 24.9 25.7 26.5 27.2 27.8 28.4 29.0 29.5 30.1 14.4 17.9 19.2 20.5 21.7 22.8 23.8 24.8 25.6 26.4 27.1 27.8 28.4 29.0 29.5 30.1 15.4 17.7 19.2 20.5 21.7 22.8 23.8 24.8 25.6 26.4 27.1 27.7 28.4 28.9 29.5 30.1 15.4 17.7 19.1 20.4 21.7 22.8 23.8 24.7 25.6 26.3 27.1 27.7 28.4 28.9 29.5 30.1 15.4 17.7 17.4 19.0 20.4 21.7 22.7 23.7 24.7 25.5 26.3 27.0 27.7 28.3 28.9 29.5 30.1 19.7 17.4 19.0 20.4 21.7 22.7 23.7 24.7 25.5 26.3 27.0 27.7 28.3 28.9 29.5 30.1			ċ	~	~	3	€	4	5	•	•	-	œ	œ	•	0	0
1 19.6 19.7 20.5 21.5 22.5 23.4 24.3 25.1 25.9 26.6 27.3 28.0 28.5 29.1 29.6 30. 28.1 19.0 20.1 21.2 22.2 23.2 24.2 25.0 25.8 26.6 27.3 27.9 28.5 29.1 29.6 30. 31.1 19.0 20.1 21.0 22.1 23.1 24.1 24.9 25.8 26.5 27.2 27.9 28.5 29.0 29.6 30. 4 17.1 18.2 19.2 20.8 21.9 23.0 24.0 24.9 25.7 26.5 27.2 27.9 28.4 29.0 29.5 30. 29.5 30. 20.1 17.7 19.2 20.6 21.8 23.9 24.8 25.6 26.4 27.1 27.8 28.4 29.0 29.5 30. 29.5 15.0 17.6 19.1 20.4 21.7 22.8 23.8 24.7 25.6 26.4 27.1 27.7 28.4 29.0 29.5 30. 29.5 30. 29.7 17.4 19.0 20.4 21.7 22.8 23.8 24.7 25.6 26.3 27.1 27.7 28.4 28.9 29.5 30. 29.5 30. 20.7 17.4 19.0 20.4 21.7 22.8 23.7 24.7 25.6 26.3 27.0 27.7 28.3 28.9 29.5 30.		8	·	* •	+	2	₩)	4	5.	•	9	7	80	œ	•	•	0
2 18.1 19.0 20.1 21.2 22.2 23.2 24.2 25.8 26.6 27.3 27.9 28.5 29.1 29.6 30. 17.4 18.5 19.8 21.0 22.1 23.1 24.1 24.9 25.8 26.5 27.2 27.9 28.5 29.0 29.6 30. 17.4 18.2 19.5 20.8 21.9 23.3 24.0 24.9 25.7 26.5 27.2 27.9 28.4 29.0 29.5 30. 16.4 17.9 19.3 20.6 21.8 22.9 23.9 24.8 25.6 26.4 27.1 27.8 28.4 29.0 29.5 30. 15.1 17.7 19.2 20.5 21.7 22.8 23.8 24.8 25.6 26.4 27.1 27.8 28.4 29.0 29.5 30. 15.9 17.6 19.1 20.4 21.7 22.8 23.8 24.7 25.6 26.3 27.1 27.7 28.4 28.9 29.5 30. 15.9 17.6 19.1 20.4 21.6 22.7 23.7 24.7 25.5 26.3 27.0 27.7 28.3 28.9 29.5 30. 15.7 17.4 19.0 20.4 21.6 22.7 23.7 24.7 25.5 26.3 27.0 27.7 28.3 28.9 29.5 30.		,	6	<u>-</u>		2	~	4	Š	5	. 9	7	œ	œ	6	0	0
3 17. x 18.5 19.8 21.0 22.1 23.1 24.1 24.9 25.8 26.5 27.2 27.9 28.5 29.0 29.6 30.		r)	0	-		~	3	4	5	5.	9	7	7	œ	6	•	0
4 16.7 18.2 19.5 20.8 21.9 23.3 24.0 24.9 25.7 26.5 27.2 27.8 28.4 29.0 29.5 30. 16.4 17.9 19.3 20.6 21.8 22.9 24.8 25.5 26.4 27.1 27.8 28.4 29.0 29.5 30. 16.1 17.7 19.2 20.5 21.7 22.8 23.8 24.8 25.6 26.4 27.1 27.8 28.4 29.0 29.5 30. 15.9 17.6 19.1 20.4 21.7 22.8 23.8 24.7 25.6 26.3 27.1 27.7 28.4 28.9 29.5 30. 15.9 17.6 19.0 20.4 21.7 22.7 23.7 24.7 25.5 26.3 27.0 27.7 28.3 28.9 29.5 30.		;	a	0		?	~	4	4	5	9	7	7	80	6	•	0
5 16.4 17.9 19.3 20.6 21.8 23.9 24.8 25.5 26.4 27.1 27.8 28.4 29.0 29.5 30.6 16.1 17.7 19.2 20.5 21.7 22.8 23.8 24.8 25.6 26.4 27.1 27.8 28.4 29.0 29.5 30.7 15.9 17.6 19.1 20.4 21.7 22.8 23.8 24.7 25.6 26.3 27.1 27.7 28.4 28.9 29.5 30.8 15.9 17.6 19.0 20.4 21.7 22.7 23.7 24.7 25.5 26.3 27.0 27.7 28.3 28.9 29.5 30.8 15.7 17.4 19.0 20.4 21.6 22.7 23.7 24.7 25.5 26.3 27.0 27.7 28.3 28.9 29.5 30.8		·	oc.	0	ċ	-	~.	4	4	č.	9	7	7	œ	6	•	0
6 14.1 17.7 19.2 20.5 21.7 22.8 23.8 24.8 25.6 26.4 27.1 27.8 28.4 29.0 29.5 33 7 15.9 17.6 19.1 20.4 21.7 22.8 23.8 24.7 25.6 26.3 27.1 27.7 28.4 28.9 29.5 30 8 15.9 17.6 19.0 20.4 21.6 22.7 23.7 24.7 25.5 26.3 27.0 27.7 28.3 28.9 29.5 30		€	7	•	Ċ		0	M	4	10	9	7.	_	αú	0	0	0
7 15.9 17.6 19.1 20.4 21.7 22.8 23.8 24.7 25.6 26.3 27.1 27.7 28.4 28.9 29.5 30 8 15.7 17.4 19.0 20.4 21.4 22.7 23.7 24.7 25.5 26.3 27.0 27.7 28.3 28.9 29.5 30		•	′.	6	c	-	\sim	٦,	4	5	•	7.	7	œ	٠ 0	0	Ü
8 15.7 17.4 19.0 20.4 21.6 22.7 23.7 24.7 25.5 26.3 27.0 27.7 28.3 28.9 29.5 30		۲.	7.	0	ċ	.	~	~	4	5	ç	7	<u>′</u>	æ.	œ	•	0
		·.	7	•	· -	• •==	\sim	·.	4	5	•	7	7.	σc)	œ	·	0

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARM BULK DENSITY =2.36

0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	3 > 0	; ;		!		;			RET	! !				!	1 1	(((; ;
25	- K 1 - C	= .	9.0		c .	0.0	3.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	6.1	2.0
1. 1. 1. 1. 1. 1. 1. 1.	24	=						 • •	! ! • ! C		0		0	0.			5.5
0				د							0	C		C	0	M)	6
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0											0			-		36.9	
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0				٠.		0					0	C	4		Š	*	3
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0											0	-	3.	4	3	2	2
11. 11. 11. 11. 11. 11. 11. 11. 11. 11.				0							8	4	ò	2	i	5	5
1				0					0	ç	2	•	-	-	- 4	-	-
0. 0. 0. 34.0 30.6 29.7 29.4 29.5 29.7 30.0 30.3 30.0 33.5 29.6 28.7 28.5 28.6 28.9 29.7 30.0<				<u>.</u>				ć	4	-	0	6	0	0	0	30.9	•
0. 0. 0. 0. 0. 33.8 29.6 28.7 28.5 28.6 28.9 29.3 29.6 30.0 4 0. 0. 0. 33.8 28.7 27.7 27.6 27.8 28.1 28.5 28.9 29.3 29.6 30.0 5 0. 0. 0. 36.9 27.8 26.7 26.6 26.8 27.2 27.7 28.2 28.7 29.1 29.6 6 0. 0. 0. 27.2 25.6 25.5 25.9 26.3 26.9 27.4 27.9 28.5 29.0 29.5 10. 0. 27.2 24.3 25.6 25.5 25.9 26.5 27.2 27.8 28.3 28.9 29.3 10. 29.7 23.6 23.3 23.7 24.3 25.0 25.7 26.3 27.0 27.6 28.2 28.8 29.3 10. 29.7 23.6 23.3 23.7 24.3 25.0 25.7 26.3 27.0 27.6 28.2 28.8 29.3 10. 29.7 23.6 23.3 23.7 24.3 25.0 25.7 26.3 27.0 27.6 28.2 28.8 29.3 10. 20. 20. 20. 20.4 23.1 23.9 24.7 25.4 26.2 26.9 27.5 28.1 28.7 29.2 11. 19. 19. 17. 17. 19. 22. 22. 23.2 24.2 25.3 26.0 26.6 27.3 28.0 28.5 29.1 14. 1 19. 1 20. 20. 1 21.9 22.8 23.6 24.5 25.7 26.3 27.6 27.3 27.9 28.5 29.1 14. 1 19. 1 20. 20. 1 2				0			0.	4	0	6	G.	0	6	c	0	c	1.
10. 0. 0. 0. 35.8 28.7 27.7 27.6 27.8 28.1 28.5 28.9 29.4 29.8 10. 0. 0. 35.9 27.8 26.7 26.6 26.8 27.2 27.7 28.2 28.7 29.1 29.6 10. 0. 0. 35.9 27.8 26.7 26.8 27.2 27.7 28.2 28.7 29.1 29.6 10. 0. 27.2 24.5 25.6 25.5 25.9 26.3 26.9 27.4 27.9 28.5 29.0 29.4 24.8 25.3 25.9 26.5 27.4 27.9 28.5 29.0 29.4 10. 27.2 24.5 24.8 25.5 25.9 26.3 27.9 27.8 28.3 28.9 29.4 10. 27.2 24.5 24.3 27.7 25.9 26.3 27.0 27.6 27.8 28.3 28.9 29.4 10. 27.9 23.7 24.3 25.0 26.3 27.0 27.6 27.8 28.2 28.7 29.2 29.4 10. 27.9 22.8 23.1 24.7 25.4 26.2 26.9 27.5 28.1 28.7 29.2 11. 21.9 22.8 23.6 24.5 25.3 26.0 26.7 27.4 28.0 28.6 29.1 119.6 19.7 20.5 22.5 23.4 24.3 25.1 25.9 26.6 27.3 27.9 28.5 29.1 119.1 19.0 27.1 27.8 22.7 27.9 28.5 29.0 27.1 19.0 27.1 27.9 28.7 27.9 28.5 29.0 27.1 27.9 29.0 27.1 27.9 28.7 29.0 27.1 27.9 28.7 29.0 27.1 27.1 27.8 28.4 29.0 27.1 17.7 19.2 27.5 27.7 22.8 23.8 24.8 25.6 26.3 27.1 27.8 28.4 29.0 27.1 17.7 19.2 27.5 27.7 22.8 23.8 24.8 25.6 26.3 27.1 27.7 28.3 28.9 28.9 27.7 27.7 28.3 28.9 28.9 27.7 27.7 28.3 28.9 28.9 27.7 27.7 28.3 28.9 28.9 27.7 27.7 28.3 28.9 28.9 27.7 27.7 28.3 28.9 28.9 27.7 27.7 28.3 28.9 28.9 27.7 27.7 28.3 28.9 28.9 27.7 27.7 28.3 28.9 28.9 27.7 27.7 28.3 28.9 28.9 27.7 27.7 28.3 28.9 28.9 27.7 27.7 28.3 28.9 28.9 27.7 27.7 28.3 28.9 28.9 27.7 27.7 28.3 28.9 28.9 27.7 27.7 28.3 28.9 27.7 27.7 28.3 28.9 28.9 27.7 27.7 28.3 28.9 27.7 27.7 28.3 28.9 28.9 27.7 27.7 28.3 27.1 27.7 28.3 28.9 28.9 27.7 27.7 28.3 28.9 27.7 27.7 28.3 28.9 28.9 27.7 27.7 28.3 28.9 28.9 27.7 27.7 28.3 28.9 28.9 27.7 27.7 28.3 28.9 27.7 27.7 28.3 28.9 28.9 27.7 27.7 28.3 28.9 27.7 27.7 28.3 28.9 27.7 27.7 28.3 28.9 28.9 27.7 27.7 28.3 28.3 27.0 27.7 27.7 28.3 28.9 28.9 27.7 27.7 28.3 28.9 27.0 27.7 27.7 28.3 28.9 28.9 27.7 27.7 28.3 28.9 27.0 27.7 27.7 28.3 28.9 28.9 27.7 27.7 28.3 28.9 27.7 27.7 28.3 28.9 28.9 27.7 27.7 28.3 28.9 27.7 27.7 28.3 28.9 27.7 27.7 28.3 28.9 27.7 27.7 28.3 28.9 27.7 27.7 27.7 28.3 28.9 27.7 27.7 27.7 28.3 28.9 27.7 27.7 27.7 27.7 28.3 28.9 27.7 27.7 27.7 28.3 28.9 27.7 27.7 27.7 27.7 27.7 28.3				0			3	0	œ	œ	ъ Э	œ.	· •	6	0	0	
0. 0. 36.9 27.8 26.5 26.6 8 27.2 27.7 28.2 28.3 27.9 28.5 29.6 97.2 27.9 28.5 29.0 29.4 29.6 97.2 27.9 28.5 29.0 29.4 29.9 29.4 29.9 29.4 29.6 97.2 27.9 28.5 29.0 29.4 29.9 29.9 29.9 29.0 29.9 29.9 29.0 29.9 <				0.		3	œ.	7	7.	7.	æ	œ	80	6	•	0	0
6 0. 0. 0. 07.2 25.6 25.5 25.9 26.3 26.9 27.4 27.9 28.5 29.0 29.5 0. 0. 0. 07.2 24.5 24.4 24.8 25.3 25.9 26.6 27.2 27.8 28.3 28.9 29.4 0. 29.7 23.6 23.3 23.7 24.3 25.0 25.7 26.3 27.0 27.6 28.2 28.8 29.3 29.4 0. 29.9 22.0 29.4 23.1 23.9 24.7 25.4 26.2 26.9 27.5 28.1 28.7 29.2 0. 23.1 20.8 21.1 21.9 22.8 23.6 24.7 25.4 26.2 26.9 27.5 28.1 28.7 29.2 1 19.4 19.7 20.5 21.5 22.5 23.4 24.5 25.3 26.0 26.7 27.4 28.0 28.6 29.1 22 14.1 19.0 20.1 21.2 22.2 23.2 24.2 25.0 25.8 26.6 27.3 28.0 28.5 29.1 14.1 19.0 20.1 21.2 22.2 23.2 24.2 25.0 25.8 26.6 27.3 27.9 28.5 29.1 14.1 19.0 20.1 21.9 22.1 23.1 24.1 24.9 25.8 26.6 27.3 27.9 28.5 29.0 14.1 19.0 20.8 21.9 23.0 24.8 25.5 26.4 27.1 27.8 28.4 29.0 26.1 19.0 20.5 21.8 20.8 23.9 24.8 25.5 26.4 27.1 27.8 28.4 29.0 26.1 19.0 20.5 21.7 22.8 23.8 24.8 25.5 26.4 27.1 27.8 28.4 29.0 27.1 17.7 19.2 20.5 21.7 22.8 23.8 24.7 25.6 26.3 27.1 27.7 28.4 28.9 28.5 29.1 27.7 17.4 19.1 20.4 21.7 22.8 23.8 24.7 25.5 26.3 27.1 27.7 28.3 28.9 28.9 28.9 28.9 28.9 28.5 26.3 27.1 27.7 28.3 28.9 28.9 28.9 28.9 28.9 28.9 28.9 28.3 27.1 27.7 28.3 28.9 28.9 28.9 28.9 28.9 28.9 28.3 27.1 27.7 28.3 28.9 28.9 28.9 28.9 28.3 27.1 27.7 28.3 28.9 28.9 28.9 28.9 28.3 27.1 27.7 28.3 28.9 28.9 28.9 28.9 28.9 28.9 28.9 28.3 27.1 27.7 28.3 28.9 28.9 28.9 28.9 28.9 28.9 28.9 28.9					ċ	7	9	\$	\$		7.	σ.	80	6	0	0	0
0. n. 27.2 24.5 24.4 24.8 25.3 25.9 26.6 27.2 27.8 28.3 28.9 29.4 8 0. 29.7 23.6 23.3 23.7 24.3 25.0 25.7 26.3 27.0 27.6 28.2 28.8 29.3 9 0. 29.7 23.6 23.3 23.7 24.3 25.0 25.7 26.3 27.0 27.5 28.1 28.7 29.2 1 19.6 19.7 20.8 21.1 21.9 22.8 23.6 24.5 25.3 26.0 27.5 28.1 28.7 29.2 1 19.6 19.7 20.5 21.5 22.5 23.4 24.3 25.1 25.9 26.6 27.3 28.0 28.5 29.1 1 18.1 19.0 20.1 21.2 22.2 23.2 24.2 25.0 25.8 26.6 27.3 27.9 28.5 29.1 1 14.1 19.0 20.1 22.1 23.1 24.1 24.9 25.8 26.5 27.2 27.9 28.5 29.0 1 15.4 17.9 19.3 20.6 21.8 23.9 24.8 25.6 26.4 27.1 27.8 28.4 29.0 1 15.9 17.7 19.2 20.5 21.7 22.8 23.8 24.8 25.6 26.4 27.1 27.8 28.4 29.0 1 15.9 17.6 19.1 20.4 21.7 22.8 23.8 24.7 25.6 26.4 27.1 27.7 28.4 28.9				•	7.	3	5.	5	9	9	7	r.	80	6	0	29.9	30.4
0. 29.7 23.6 23.3 23.7 24.3 25.0 25.7 26.3 27.0 27.6 28.2 28.8 29.3 9.0 27.9 22.0 22.4 23.1 23.9 24.7 25.4 26.2 26.9 27.5 28.1 28.7 29.2 1 19.6 19.7 20.5 21.5 22.5 23.4 24.5 25.3 26.0 26.7 27.4 28.0 28.6 29.1 19.6 19.7 20.5 21.5 22.5 23.4 24.3 25.1 25.9 26.6 27.3 28.0 28.5 29.1 19.6 19.7 20.1 21.2 22.2 23.2 24.2 25.0 25.8 26.6 27.3 27.9 28.5 29.1 17.4 18.5 19.8 21.0 22.1 23.1 24.1 24.9 25.8 26.6 27.3 27.9 28.5 29.0 24.0 16.7 19.2 20.8 21.9 23.0 24.8 25.6 26.6 27.3 27.9 28.5 29.0 24.0 16.7 19.2 20.6 21.8 23.9 24.8 25.6 26.4 27.1 27.8 28.4 29.0 25.1 17.7 19.2 20.5 21.7 22.8 23.8 24.8 25.6 26.4 27.1 27.8 28.4 29.0 27.1 17.7 19.2 20.5 21.7 22.8 23.8 24.8 25.6 26.4 27.1 27.8 28.4 29.0 27.1 17.7 19.2 20.5 21.7 22.8 23.8 24.7 25.6 26.4 27.1 27.7 28.3 28.9 27.1 17.7 27.8 28.4 28.9 27.1 27.7 28.3 28.9 27.1 27.7 28.3 28.9 27.1 27.7 28.3 28.9 27.1 27.7 28.3 28.9 27.7 27.7 28.3 27.0 27.7 28.3 28.9				7	4	4	4	5.	5	•	7	7	3 0	æ	6	0	0
0. 72.9 22.0 22.4 23.1 23.9 24.7 25.4 26.2 26.9 27.5 28.1 28.7 29.2 1 23.1 21.8 21.1 21.9 22.8 23.6 24.5 25.3 26.0 26.7 27.4 28.0 28.6 29.1 19.4 19.7 20.5 21.5 22.5 23.4 24.3 25.1 25.9 26.6 27.3 28.0 28.5 29.1 18.1 19.0 20.1 21.2 22.5 23.2 24.2 25.0 25.8 26.6 27.3 27.9 28.5 29.1 17.4 18.5 19.8 21.0 22.1 23.1 24.1 24.9 25.8 26.6 27.3 27.9 28.5 29.0 14.7 18.2 19.5 20.8 23.0 24.0 24.9 25.7 26.5 27.2 27.9 28.4 29.0 16.7 17.9 19.3 20.6 21.9 23.9 24.8 25.6 26.4 27.1 27.8 28.4 29.0 15.9 17.5 19.1 20.5 21.7 22.8 23.8 24.8 25.6 26.4 27.1 27.8 28.4 29.0 17.9 17.5 19.1 20.4 21.7 22.8 23.8 24.7 25.6 26.3 27.1 27.7 28.4 28.9 17.7 17.4 19.1 20.4 21.7 22.8 23.8 24.7 25.5 26.3 27.1 27.7 28.3 28.9 17.7 17.7 19.1 20.4 21.7 22.8 23.7 24.7 25.5 26.3 27.1 27.7 28.3 28.9			•	3	3	3	4	5	5.			7.	8	æ	6	0	0
23.1 20.8 21.1 21.9 22.8 23.6 24.5 25.3 26.0 26.7 27.4 28.0 28.6 29.1 19.6 19.7 20.5 21.5 22.5 23.4 24.3 25.1 25.9 26.6 27.3 28.0 28.5 29.1 21.5 19.0 20.1 21.2 22.5 23.2 24.2 25.0 25.8 26.6 27.3 27.9 28.5 29.1 17.4 18.5 19.8 21.0 22.1 23.1 24.1 24.9 25.8 26.5 27.2 27.9 28.5 29.0 4 16.7 19.5 20.6 21.8 23.0 24.0 25.7 26.5 27.2 27.9 28.5 29.0 24.7 17.9 19.5 20.6 21.8 22.9 23.9 24.8 25.5 26.4 27.1 27.8 28.4 29.0 25.1 17.7 19.2 20.5 21.7 22.8 23.8 24.8 25.6 26.4 27.1 27.8 28.4 29.0 27.1 17.7 19.2 20.5 21.7 22.8 23.8 24.8 25.6 26.3 27.1 27.7 28.4 28.9 27.1 17.7 19.1 20.4 21.7 22.8 23.8 24.7 25.6 26.3 27.1 27.7 28.4 28.9 28.9 27.1 27.7 28.4 28.9 28.9 27.1 27.7 28.3 28.9 28.9 28.9 27.1 27.7 28.3 28.9 28.9 27.1 27.7 28.3 28.9 28.9 27.1 27.7 28.3 28.9 28.9 27.1 27.7 28.3 28.9 28.9 27.1 27.7 28.3 28.9 28.9 27.1 27.7 28.3 28.9 28.9 27.1 27.7 28.3 28.9 28.9 27.1 27.7 28.3 28.9 28.9 27.1 27.7 28.3 28.9 28.9 27.1 27.7 28.3 28.9 28.9 28.9 27.1 27.7 28.3 27.1 27.7 28.3 28.9 28.9 27.1 27.7 28.3 28.9 28.9 27.1 27.7 28.3 28.9 28.9 27.1 27.7 28.3 27.1 27.7 28.3 28.9 28.9 28.9 27.1 27.7 28.3 27.1 27.7 28.3 28.9 28.9 28.9 28.9 27.1 27.7 28.3 27.1 27.7 28.3 28.9 28.9 28.9 28.9 28.9 28.9 28.9 28.9			ċ	٠.	`	3	€	4	5	•	•	~	80	œ.	6	0	0
19.6 19.7 20.5 21.5 22.5 23.4 24.3 25.1 25.9 26.6 27.3 28.0 28.5 29.1 21.1 19.0 20.1 21.2 22.2 23.2 24.2 25.0 25.8 26.6 27.3 27.9 28.5 29.1 217.4 18.5 19.8 21.0 22.1 23.1 24.1 24.9 25.8 26.5 27.2 27.9 28.5 29.0 24.1 24.1 24.9 25.8 26.5 27.2 27.9 28.5 29.0 24.1 24.1 24.9 25.7 26.5 27.2 27.9 28.5 29.0 24.1 27.1 12.2 27.9 28.4 29.0 25.1 24.1 27.8 28.4 29.0 25.1 27.1 27.1 27.8 28.4 29.0 25.1 12.1 17.7 19.2 20.5 21.7 22.8 23.8 24.8 25.6 26.4 27.1 27.8 28.4 29.0 27.1 17.7 19.2 20.5 21.7 22.8 23.8 24.7 25.6 26.3 27.1 27.7 28.4 28.9 27.7 27.7 28.4 28.9 27.7 27.7 27.7 28.4 28.9 28.9 27.7 27.7 27.7 28.3 28.9 28.9 27.7 27.7 28.3 28.9 28.9 27.7 27.7 28.3 28.9 28.9 27.7 27.7 28.3 28.9 28.9 27.7 27.7 28.3 28.9 28.9 27.7 27.7 28.3 28.9 28.9 27.7 27.7 28.3 27.0 27.7 28.3 28.9		8	_	← ,	-	2	M)	4	Š	•	9	,	80	œ	6	•	0
2 18.1 19.0 20.1 21.2 22.2 23.2 24.2 25.8 26.6 27.3 27.9 28.5 29.1 3 17.8 18.5 19.8 21.0 22.1 23.1 24.1 24.9 25.8 26.5 27.2 27.9 28.5 29.0 4 16.7 19.5 20.8 21.9 23.0 24.0 24.9 25.7 26.5 27.2 27.8 28.4 29.0 2 16.4 17.9 19.3 20.6 21.8 22.9 23.9 24.8 25.6 26.4 27.1 27.8 28.4 29.0 2 15.9 17.5 19.2 20.5 21.7 22.8 23.8 24.8 25.6 26.4 27.1 27.8 28.4 29.0 2 15.9 17.6 19.1 20.4 21.7 22.8 23.8 24.7 25.6 26.3 27.1 27.7 28.4 28.9 2 15.9 17.6 19.1 20.4 21.7 22.8 23.8 24.7 25.6 26.3 27.1 27.7 28.3 28.9 28.9 27.7 27.8 28.4 28.9 27.7 27.8 28.8 28.9 28.9 28.9 28.9 28.9 28.9 28		٠ ح	6	_	-	3	۵.	4	3	5	9	7	80	œ.	6	29.6	•
3 17.4 18.5 19.8 21.0 22.1 23.1 24.1 24.9 25.8 26.5 27.2 27.9 28.5 29.0 4 16.7 18.2 19.5 20.8 23.0 24.0 24.9 25.7 26.5 27.2 27.8 28.4 29.0 5 16.4 17.9 19.3 20.6 21.8 22.9 23.9 24.8 25.6 26.4 27.1 27.8 28.4 29.0 5 15.0 17.7 19.2 20.5 21.7 22.8 23.8 24.8 25.6 26.4 27.1 27.8 28.4 29.0 5 15.0 17.6 19.1 20.4 21.7 22.8 23.8 24.7 25.6 26.3 27.1 27.7 28.4 28.9 2 15.0 17.6 19.1 20.4 21.7 22.8 23.8 24.7 25.6 26.3 27.1 27.7 28.3 28.9 28.9 27.7 27.8 28.4 28.9		r)	0	<u>-</u>		8	3	4	رى	5	. 9	7	7.	. 60	6	0	0
4 16.7 18.2 19.5 20.8 21.9 23.0 24.0 24.9 25.7 26.5 27.2 27.8 28.4 29.0 5 16.4 17.9 19.5 20.6 21.8 22.9 23.9 24.8 25.5 26.4 27.1 27.8 28.4 29.0 5 16.1 17.7 19.2 20.5 21.7 22.8 23.8 24.8 25.6 26.4 27.1 27.8 28.4 29.0 7 15.9 17.6 19.1 20.4 21.7 22.8 23.8 24.7 25.6 26.3 27.1 27.7 28.4 28.9 8 15.9 17.6 19.0 20.4 21.6 22.7 23.7 24.7 25.5 26.3 27.0 27.7 28.3 28.9 8 15.7 17.4 19.0 20.4 21.6 22.7 23.7 24.7 25.5 26.3 27.0 27.7 28.3 28.9			ά	•	1.	?	3	4	4	ب	9	.	7	80	0	6	0
5 16.4 17.9 19.3 20.6 21.8 22.9 23.9 24.8 25.5 26.4 27.1 27.8 28.4 29.0 6 15.1 17.7 19.2 20.5 21.7 22.8 23.8 24.8 25.6 26.4 27.1 27.8 28.4 29.0 7 15.9 17.6 19.1 20.4 21.7 22.8 23.8 24.7 25.6 26.3 27.1 27.7 28.4 28.9 8 15.9 17.6 19.0 20.4 21.7 22.8 23.8 24.7 25.6 26.3 27.1 27.7 28.3 28.9 8		Ĺ	σc.	0	<u>-</u>		٠.	4	4	5	•	,	7	00	6	•	0
6 15.0 17.7 19.2 20.5 21.7 22.8 23.8 24.8 25.6 26.4 27.1 27.8 28.4 29.0 7 15.0 17.6 19.1 20.4 21.7 22.8 23.8 24.7 25.6 26.3 27.1 27.7 28.4 28.9 8 15.7 17.4 19.0 20.4 21.4 22.7 23.7 24.7 25.5 26.3 27.0 27.7 28.3 28.9		€.	/	5	·	+	~	M	4	10	9	7	7.	Œ	6	0	0
7 15.9 17.6 19.1 20.4 21.7 22.8 23.8 24.7 25.6 26.3 27.1 27.7 28.4 28.9 8 15.7 17.4 19.0 20.4 21.4 22.7 23.7 24.7 25.5 26.3 27.0 27.7 28.3 28.9		•		0	<u> </u>		\sim	κ.	4	5	9	7.	7	œ	٠.	29.5	30.0
8 15.7 17.4 19.0 20.4 21.4 22.7 23.7 24.7 25.5 26.3 27.0 27.7 28.3 28.9		`.	7	6	<u>-</u>	1.	ς.	~	4	5	ç		<u>ر</u>	ď	œ	•	0
		·	7	0	ċ	•	$\stackrel{{}_{\hspace{1em} \circ}}{\sim}$	κ.	4	Š.	9	7	7 .	œ	œ	6	0

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =2.50

								BET							(
▼ ←	0.5	; C		8 .	0	1.0	1.1	1.2	1.3	1.4	5.5	1.6	1.7	1.8	1.9	C)
24								0	0	0.	9	0	0	• 0	9.	0
														0	0	9
	0			·	0.	0.	6	C	0	0	0.	0.	0	55.5	42.3	38.9
												0		φ.	7	9
										0	0		7.	v.	4	4
		L	С				0					9	4	m	•	٠ (۲۲
			c						5	-	4	12	3	0	2	8
				, _	0		0	63.5	36.4	33.5	32.4	32.0	32.0	32.1	32.2	•
						•		5	2	٠,	-	+	+	-	÷	ò
10						•	34.	+	0	0		0	0	-	÷	+
	=		·				c	6	6	6	0	•	0	0.	-1	31.7
۲		c		•	4	0	OK.	α	oc	80	0	0	0	0	•	+
				00	60	7	7	7	60	60	6	6	0	0	0	+
	0		. 0	œ	•	9	26.6	27.1	27.7	28.5	28.8	29.3	29.8	30.3	36.8	31.3
		C	α.	5	5	5	ċ	9	7	80	α.	6	0.	0	0	-
		32.8	24.6	24.1	24.4	25.0	5	9	7.	7	α.	6	•	ċ	ċ	-
	\subset	4	~	M	8	4	5	9	7	7.	œ	00	6	0	0	•
	۲.		21.5	22.6	3.	24.4	25.2	26.0	26.8	51.5	28.2	58.9	29.5	30.0	30.5	31.0
	ċ	c c	* 4	ċ	M.)	4	5	5.	ŝ	7	œ	80	6	с С	0	
	J.	0	-	•	2	4	4	ır.	•	· '`	œ	8	·	о. О	c	.
	œ	•	ċ	•		3	4	5.	9	7.	œ.	œ	· •	ò	0	0
	1/.4			•		8	4	ď.	•	7.	ac	6 0	6	0	0	0
	`	œ	-	1	5	3.	4	5.	9	7	. .	.03	0	5	0	0
	٠. •			21.2		23.5	24.6	25.5	26.4	27.2	27.9	28.6	29.5	8.62	50.4	•
	ċ	à	6	•	5	3	4	5.	è	7.	, ,	œ	0	6	ċ	٠.

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =2.75

0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0								BET		1	!		1			1
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	ر د	9.0	0.7	0.8	0.0	1.0	4 1	1.2	4.4	4 .	1.5	1.6	1.7	8.1	6	2.0
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	0		0	C	0	0.		0		0	0	0.	0.			
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0		<u>-</u>												0		0.
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0											0.	0	0	•	0	53.7
0. 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0													•	0		٠ ن
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0												0		M		80
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0													-	60	7	9
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 44. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 43.2 36. 0. 0. 0. 0. 0. 0. 0. 0. 43.4 34.8 33.0 32.3 0. 0. 0. 0. 0. 33.8 34.1 32.0 31.4 31.0 0. 0. 35.6 29.4 28.5 28.5 29.8 30.5 30.0 0. 0. 35.6 29.4 28.5 28.5 29.8 29.3 29.0 0. 0. 35.4 25.5 25.1 25.6 26.7 27.3 28.0 28.7 29.0 0. 57.4 25.5 25.1 25.6 26.7 27.3 28.0 28.7 29.0 0. 32.4 25.5 25.1 25.6 26.7 27.3 28.1 28.4 29.0 0. 32.4 25.5 25.1 25.6 26.7 27.3 28.1 28.4 29.0 0. 32.4 25.5 25.1 25.6 26.7 27.3 28.1 28.9 29.0 20.0 20.0 20.0 20.0 20.0 20.0 20					0					0	7	6	7	•	5	5
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 43.2 36.0 0. 0. 0. 0. 43.2 35.0 0. 0. 0. 0. 0. 0. 43.4 34.8 33.0 32.0 0. 0. 0. 0. 43.4 34.8 33.0 32.3 32.0 0. 0. 0. 33.8 30.2 29.5 29.5 29.8 30.0 0. 0. 35.6 29.4 28.5 28.8 29.5 29.8 30.0 0. 0. 35.6 29.4 28.5 28.8 29.3 29.0 0. 0. 35.6 29.4 28.5 28.8 29.3 29.0 0. 0. 35.6 29.4 28.5 28.8 29.3 29.0 0. 0. 35.9 27.5 27.4 27.8 28.4 29.3 29.0 0. 32.4 25.5 25.1 25.6 26.2 27.0 27.7 28.4 29.0 0. 32.9 24.3 25.0 25.6 26.5 27.3 28.1 28.4 29.0 0. 33.8 29.3 29.0 25.1 25.6 26.5 27.1 27.9 28.1 28.1 21.5 22.3 23.3 24.3 25.1 25.1 26.1 27.1 27.9 28.9 29.0 20.2 21.5 22.7 23.9 25.0 26.9 27.0 27.8 28.8 26.7 27.9 28.8 21.2 22.1 22.1 22.1 22.1 27.9 28.9 27.0 27.0 27.0 27.0 27.0 27.0 27.0 27.0									0	+	•	9	Š	•	4	4
0. 0. 0. 0. 0. 0. 0. 0. 43.4 34.8 35.7 33.0. 0. 0. 0. 0. 43.4 34.8 35.7 33.0. 0. 0. 0. 47.8 34.1 32.0 31.4 31.0. 0. 0. 35.6 29.4 28.5 29.5 29.5 29.8 30.0. 0. 0. 35.6 29.4 28.5 28.5 28.8 29.3 29.8 30.0. 0. 59.7 28.9 27.5 27.4 27.8 28.4 28.9 29.3 29.0. 0. 59.7 28.9 27.5 27.4 27.8 28.4 28.9 29.3 29.0. 0. 32.4 25.5 25.1 25.6 26.7 27.3 28.0 28.7 29.0. 0. 32.4 25.5 25.1 25.6 26.7 27.3 28.1 28.4 29.9 27.7 21.8 23.0 24.3 25.6 26.5 27.3 28.1 28.1 28.1 21.5 22.3 23.3 24.3 25.3 26.3 27.2 28.1 28.1 28.9 29.0 20.7 21.8 23.0 24.1 25.1 26.1 27.1 27.9 28.9 20.0 20.2 21.5 22.7 23.9 25.0 26.0 27.7 28.8 28.8 21.2 22.5 22.5 23.7 21.9 25.9 26.9 27.7 28.8 23.6 23.6 26.8 27.7 28.8 28.8 23.6 23.6 26.8 25.8 26.8 27.7 28.8 28.8 23.6 24.8 25.8 26.8 27.7 28.8 28.8 23.6 24.8 25.8 26.8 27.7 28.8 28.8 23.6 24.8 25.8 26.8 27.7 28.8 28.8 23.6 24.8 25.8 26.8 27.7 28.8 28.8 23.6 24.8 25.8 26.8 27.7 28.8 28.8 23.6 23.7 21.9 25.8 25.8 26.8 27.7 28.8 28.8 23.6 23.6 26.8 27.7 28.8 23.6 23.6 26.8 27.7 28.8 28.8 23.6 23.6 26.8 27.7 28.8 28.8 23.6 23.6 26.8 27.7 28.8 28.8 23.6 23.6 26.8 27.7 28.8 28.8 23.6 23.6 26.8 27.7 28.8 28.8 23.6 23.6 26.8 27.7 28.8 28.8 23.6 23.6 26.8 27.7 28.8 28.8 23.6 23.6 26.8 27.7 28.8 28.8 23.6 23.7 27.8 28.8 25.8 26.8 25.8 26.8 27.7 28.8 28.8 23.6 23.7 27.8 28.8 25.8 26.8 27.7 28.8 28.8 27.7 28.8 28.8 27.7 28.8 28.8							0	0	m	9	35.0	34.2	34.0	34.0	34.1	34.3
0. 0. 0. 0. 0. 0. 47.8 34.1 32.0 31.4 31.0 0. 0. 47.8 34.1 32.0 31.4 31.0 0. 0. 33.8 30.2 29.5 29.5 29.8 30.0 0. 0. 35.6 29.4 28.5 28.5 29.5 29.8 30.0 0. 0. 35.6 29.4 28.5 28.5 28.8 29.3 29.0 0. 0. 35.6 29.4 28.5 28.5 28.8 29.3 29.0 0. 0. 59.7 28.9 27.5 27.4 27.8 28.4 28.9 29.0 0. 32.4 25.5 25.1 25.6 26.7 27.3 28.0 28.7 29.0 0. 32.4 25.5 25.1 25.6 26.7 27.7 28.4 29.0 0. 32.4 25.5 25.1 25.6 26.5 27.7 28.4 29.0 0. 32.4 25.5 25.1 25.6 26.5 27.7 28.4 29.0 28.7 29.0 28.7 29.0 28.7 29.0 28.7 29.0 28.7 29.0 28.7 29.0 28.7 29.0 28.7 29.0 28.7 29.0 28.7 29.0 28.7 29.0 28.7 29.8 29.0 20.0 20.0 22.7 23.9 25.9 25.9 26.9 27.7 28.8 28.7 29.9 28.7 29.9 28.7 20.0 22.7 22.5 22.5 23.7 24.8 25.8 25.9 26.9 27.7 28.2 28.2 22.5 23.7 24.8 25.8 25.8 26.8 27.7 28.2 28.2 27.7 28.2 20.0 22.4 25.5 25.7 27.8 28.2 28.2 22.5 23.7 24.8 25.8 25.8 26.8 27.7 28.2 28.2 27.7 28.2 28.2 27.2 28.2 28							ċ	2	S.	3	M 3	3	₩)	P)	5	3
0. 0. 0. 0. 0. 47.8 34.1 32.0 31.4 31.0. 0. 0. 33.8 34.1 32.0 31.4 31.0. 0. 0. 33.8 30.2 29.5 29.5 29.8 30.0. 0. 0. 35.8 30.2 29.5 29.5 29.8 30.0. 0. 0. 35.6 29.4 28.5 28.5 28.8 29.3 29.0. 0. 59.7 28.9 27.5 27.4 27.8 28.4 28.9 29.0. 0. 32.4 25.5 25.1 25.6 26.2 27.0 27.7 28.4 29.0. 0. 32.4 25.5 25.1 25.6 26.7 27.3 28.1 28.1 28.1 27.5 22.7 22.9 23.3 24.3 25.0 26.3 27.2 28.0 28.1 28.1 27.5 21.5 22.3 23.3 24.3 25.1 26.1 27.1 27.9 28.9 29.0 20.2 21.5 22.7 23.9 25.0 26.0 26.0 27.9 28.8 3 19.8 21.2 22.5 23.7 21.9 25.9 26.9 27.7 28.8 28.5 19.8 21.2 22.5 23.7 21.9 25.9 26.9 27.7 28.8 28.8 3 19.8 21.2 22.5 23.7 21.9 25.9 26.9 27.7 28.8 28.9 25.0 26.9 27.7 28.8 28.8 20.9 26.9 27.7 28.8 28.8 20.9 26.9 27.7 28.8 28.8 20.9 26.9 27.7 28.8 28.8 20.9 26.9 27.7 28.8 28.8 20.9 26.9 27.7 28.8 28.8 20.9 26.9 27.7 28.8 28.8 20.9 26.9 27.7 28.8 20.9 26.9 27.7 28.8 28.8 20.9 26.9 27.7 28.8 28.8 20.9 26.9 27.7 28.8 28.8 20.9 26.9 27.7 28.8 28.8 20.9 26.9 27.7 28.8 28.9 26.9 27.7 28.8 28.8 20.9 26.9 27.7 28.8 28.8 20.9 26.9 27.7 28.8 28.8 20.9 26.9 27.7 28.8 28.8 20.9 26.9 27.7 28.8 28.8 20.9 26.9 27.7 28.8 28.8 20.9 26.9 27.7 28.8 28.8 20.9 26.9 27.7 28.8 28.8 20.9 26.9 27.7 28.8 28.8 20.9 26.9 27.7 28.8 28.8 20.9 26.9 27.7 28.8 28.8 20.9 26.9 27.7 28.8 28.8 20.9 26.9 27.7 28.8 28.8 20.9 26.9 27.7 28.8 28.8 20.9 26.9 27.7 28.8 28.8 20.9 26.9 27.7 28.8 28.8 20.9 26.9 27.7 28.8 28.8 20.9 26.9 27.7 28.8 28.8 20.9 26.9 27.7 28.8 28.8 20.9 26.9 27.7 28.8 28.8 27.7 28.8 28.8 28.8 27.7 28.8 28.8							3	4	M	5	2	'n	5	5	8	3
0. 0. 0. 0. 0. 33.8 30.2 29.5 29.5 29.8 30.0 0. 0. 35.6 29.4 28.5 29.5 29.5 29.8 30.0 0. 0. 35.6 29.4 28.5 29.5 29.5 29.8 30.0 0. 0. 35.6 29.4 28.5 28.5 28.8 29.3 25.0 0. 32.4 25.5 25.1 25.6 26.2 27.0 27.7 28.4 29.0 0. 32.4 25.5 25.1 25.6 26.2 27.0 27.7 28.4 29.0 0. 32.9 24.3 25.0 25.8 26.7 27.5 28.3 29.0 25.0 23.7 24.6 25.6 26.5 27.3 28.1 28.1 1.7 21.5 22.3 23.3 24.3 25.3 26.3 27.2 28.0 28.7 29.9 20.7 21.8 23.0 24.1 25.1 26.1 27.1 27.9 28.9 29.0 20.2 21.5 22.7 23.9 25.0 26.0 27.0 27.8 28.8 3 19.8 21.2 22.5 23.7 11.9 25.9 26.9 27.7 28.8 28.5 29.5 29.5 25.0 26.8 27.7 28.8 28.8 27.7 28.8 28.8 27.7 28.8 28.8						7	4	8		+	•	Ä	ò	~	~	8
0. 0. 0. 0. 33.8 30.2 29.5 29.5 29.8 30.0. 0. 0. 35.6 29.4 28.5 28.5 28.8 29.3 25.0. 0. 0. 35.6 29.4 28.5 28.5 28.8 29.3 25.0. 0. 59.7 28.9 27.5 27.4 27.8 28.4 28.9 29.3 25.0 25.0 23.9 24.3 25.6 26.2 27.0 27.7 28.4 29.0 25.0 23.9 24.3 25.0 25.8 26.7 27.5 28.3 29.6 25.0 25.7 22.9 23.7 24.6 25.6 26.5 27.3 28.1 28.1 1.7 21.5 22.3 23.3 24.3 25.3 26.3 27.2 28.0 28.7 27.9 28.9 27.0 27.5 22.5 22.5 23.7 24.9 25.0 26.0 27.0 27.8 28.8 27.7 29.9 20.2 21.2 22.5 23.7 27.9 25.0 26.0 27.0 27.8 28.8 27.7 29.9 29.9 25.0 26.8 27.7 28.8 28.8 27.7 28.8 29.9 25.9 25.8 25.8 27.7 28.8 28.8 27.7 28.8 28.8 27.7 28.8 28.8						3	-3 	0	0	0	•	.	-	8	2	3
0. 0. 35.6 29.4 28.5 28.8 28.8 29.3 29.0 0. 0. 35.6 29.4 28.5 27.4 27.8 28.8 29.3 29.0 20.7 28.9 27.5 27.4 27.8 28.0 28.7 29.0 32.4 25.5 25.1 25.6 26.2 27.0 27.7 28.4 29.0 0. 32.4 25.5 25.1 25.6 26.2 27.0 27.7 28.4 29.0 25.0 23.9 24.3 25.0 25.8 26.7 27.5 28.3 29.4 29.9 20.7 21.5 22.3 23.7 24.6 25.6 26.5 27.3 28.1 28.9 29.9 20.7 21.8 23.0 24.1 25.1 26.1 27.1 27.9 28.9 20.0 20.2 21.5 22.7 23.9 25.0 26.0 27.0 27.8 28.8 20.2 20.5 21.5 22.5 23.7 21.9 25.9 26.9 27.7 28.8 20.9 25.9 25.9 25.9 25.9 25.9 25.9 25.9 25				•	3	0	6	9	0.	0.	50.7	31.1	31.6	32.1	32.6	33.0
0.			0	Š	6	œ	80	ъ Ф	0	Ċ.	0	0	4	·	2	5
0. 52.4 25.5 25.1 25.6 26.2 27.0 27.7 28.4 29.0. 25.0 23.9 24.3 25.0 25.8 26.7 27.5 28.0 28.7 29.0. 25.0 23.9 24.3 25.0 25.8 26.7 27.5 28.3 29.4 29.0 22.7 22.9 23.7 24.6 25.6 26.5 27.3 28.1 28.1 1.7 21.5 22.3 23.3 24.3 25.3 26.3 27.2 28.0 28.9 9.9 20.7 21.8 23.0 24.1 25.1 26.1 27.1 27.9 28.9 0.0 20.2 21.5 22.7 23.9 25.0 26.0 27.0 27.8 28.8 21.2 22.5 23.7 23.6 24.8 25.9 26.9 27.7 28.3 29.5 29.5 25.0 26.9 27.7 28.3 29.5 29.5 25.8 25.8 25.8 25.8 26.8 27.7 28.3 28.3 25.8 25.8 25.8 25.8 25.8 25.8 25.8 25.8			6	œ	7	7	7	60	•	٥.	0	0	-	, -1	2	3
0. 32.4 25.5 25.1 25.6 26.2 27.0 27.7 28.4 29. 0. 25.0 23.9 24.3 25.0 25.8 26.7 27.5 28.3 29. 6.3 22.7 22.9 23.7 24.6 25.6 26.5 27.3 28.1 28. 1.7 21.5 22.3 23.3 24.3 25.3 26.3 27.2 28.0 28. 9.9 20.7 21.8 23.0 24.1 25.1 26.1 27.1 27.9 28. 9.0 20.2 21.5 22.7 23.9 25.0 26.0 27.0 27.8 28. 8.3 19.8 21.2 22.5 23.7 11.9 25.9 26.9 27.7 28.			0	•	9	•		80	00	•	0	Ċ,	•		0	2
0. 25.0 23.9 24.3 25.0 25.8 26.7 27.5 28.3 29.6.3 22.7 22.9 23.7 24.6 25.6 26.5 27.3 28.1 28.1.7 21.5 22.3 23.3 24.3 25.3 26.3 27.2 28.0 28.9 9.9 20.7 21.8 23.0 24.1 25.1 26.1 27.1 27.9 28.9 9.0 20.2 21.5 22.7 23.9 25.0 26.0 27.0 27.8 28.8 3 19.8 21.2 22.5 23.7 11.9 25.9 26.9 27.8 28.7 7.9 19.5 21.0 22.4 23.6 24.8 25.8 26.8 27.7 28.		·	5.	5	5	. 9		7	ુ. α	6	29.8	30.4	31.0	31.6	32.1	32.6
6.3 22.7 22.9 23.7 24.6 25.6 26.5 27.3 28.1 28.1 1.7 21.5 22.3 23.3 24.3 25.3 26.3 27.2 28.0 28.1 9.9 20.7 21.8 23.0 24.1 25.1 26.1 27.1 27.9 28.9 0.0 20.2 21.5 22.7 23.9 25.0 26.0 27.0 27.8 28.8 3 19.8 21.2 22.5 23.7 21.9 25.9 26.9 27.8 28.7 20.9 19.5 21.0 22.4 23.6 24.8 25.8 26.8 27.7 28.		r.	3.	4	5	5	. 9	7.	8	6	0	0	+	+	2	3
1.7 21.5 22.3 23.3 24.3 25.3 26.3 27.2 28.0 28.0 9.9 20.7 21.8 23.0 24.1 25.1 26.1 27.1 27.9 28. 9.0 20.2 21.5 22.7 23.9 25.0 26.0 27.0 27.8 28. 8.5 19.8 21.2 22.5 23.7 21.9 25.9 26.9 27.8 28. 7.9 19.5 21.0 22.4 23.6 24.8 25.8 26.8 27.7 28.	9	?	61	M:	4	5	•	7	8	တ	•	0	0		2	8
9.9 20.7 21.8 23.0 24.1 25.1 26.1 27.1 27.9 28. 9.0 20.2 21.5 22.7 23.9 25.0 26.0 27.0 27.8 28. 8.3 19.8 21.2 22.5 23.7 21.9 25.9 26.9 27.8 28. 7.9 19.5 21.0 22.4 23.6 24.8 25.8 26.8 27.7 28.	1	•	2.	3	4	5	¢	7.	60	œ	0	0	0	**	5	2
9.n 2n.2 21.5 22.7 23.9 25.0 26.n 27.0 27.8 28.8.5 19.8 21.2 22.5 23.7 11.9 25.9 26.9 27.8 28.7.9 19.5 21.0 22.4 23.6 24.8 25.8 26.8 27.7 28.	6	Ċ	-	100	4	5	6.	7.	7.	60	6	0	0	-	-	5
8.3 19.8 21.2 22.5 23.7 ; 1.9 25.9 26.9 27.8 28.7.9 19.5 21.0 22.4 23.6 24.8 25.8 26.8 27.7 28.	6	ċ	-	<i>ن</i>	3	5.	ċ	7.		80	29.4	30.1	30.7	31.3	31.9	32.5
7.9 19.5 21.0 22.4 23.6 24.8 25.8 26.8 27.7 28.	œ.	•	1.	5	·		S.	•		80	0	0	C	+	-	Ġ
	1.	, 0	• 4	ċ	3	4	5	. 9	7	00	0		0		-	Ċ



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =2.95

324 307 30000 EEEEE BEEEE SEEEE SEEE SEEEE SEEE SEEE SEEEE SEEE SEEE SEEE SEEE SEEE SEEE SEEE SEEEE SEEE S	i r . i	1 *C 1			c c c c c c c c c c	141 00000 00000 00000	H CCCCC CCCC 46040 0	BIMI COCOC CCOCK KWHOO C	4W WWWWW 1 1 0 0 0 0 0 0 0 0		$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$		141 BCBBH BFBN4 444WW M	101 00000 00000 44444 4
	0 0 0.0	5 C C C C C C C C C C C C C C C C C C C	23.7 25.7 25.7 25.2	2003 2003 2005 2005 2005	2000 2000 2000 2000 2000 2000 2000 200	8000 8000 8000 8000 8000 8000 8000 800	20.1 28.5 27.8 27.5	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	30.00 8.00 8.00 8.00 8.00 8.00 8.00 8.00	30.7 30.5 30.3 36.1	31.1 31.1 30.9 30.8	31.9 31.7 31.6 31.5	22.22 22.22 22.23 22.23	8 4 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	**************************************
	400 410 400 400 400 400 400 400 400 400	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	888888 88888 88888 88888 88888 88888 8888	00000 448000 00000	2222 2244 24.0 24.0	26.4 26.0 25.0 25.8	27.3 27.1 27.0 26.9	28.2 28.1 28.1 27.9	29.1 28.9 28.8 28.8	229.9	88888 6088 6088 6088 6088 6088 6088 608	31.2 31.2 31.1 31.1	32.0 31.9 31.8 31.8	88888 88888 88888	88888 88888 8888 8888 8888 8888 8888 8888	8 8 8 8 8 8 8 8 8 8 8 8

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =3.25

NXFORD FABRICS

		•					4 0	4 0	1 1 0	E		1.7	0		• • •
• • © D	 c. c	c c				 c c				, ,					
															. 0
														•	•
	<u>.</u>		0												8
	0.	-										0	2	5	3
	<u>.</u>	-									0	•	*>	-	0
0		0	•	0.	0.			0	0	0	47.5	42.5	40.6	30.7	39.3
	٠.								0 4		:	0 r	60 r	00 r	
• 0	•	-		•						.	D	•	•	•	•
0		ŋ.	· c	0.	0.		0	4	_		•		9	•	7.
	<u>-</u>	0			0	0	44.6	38.4		ċ	5	36.0	36.5	36.5	36.8
					0		7	S.	5	5	5	S.	S.	9	•
						7	4	4	4	4	4	5.	r.	٠.	•
6.						4	3	3	٠,	•	4.	4	J.	'n	Ý
.0				00	3	ċ	~	?	5	100	₩.	4	4	5	5
0	· c	0.	5	32.9	31.4	31.3	31.5	32.0	32.5	33.1	33.7	34.2	34.8	35.3	35.8
0				0	0	ċ	٠,	-	5	4	W	4	4	5	'n
		5.	6	6	•	•	0	-	5	2	.	, M		80	5
		20.3	ά	00	80	6	<u>-</u>	<u>.</u> .	7	~	3	3	4	5.	5
	· =	·	ċ	7	Œ	6	-	0	+	~	~	3	4	4	10
	ť.	33.	٠,	7	œ	œ	6	c C	.	?	3	٠ ا	4	4	3
·	24.3	24.1	75.7	26.7	27.7	28.7	29.7	30.5	31.4	32.1	32.9	33.6	34.2	34.8	35.4
	~	4	5.	9		œ.	•	ċ	-	ς.	2	3.	4	4	3
•	~	×;	₹	9	7.	8	6	-	+	۲.	٠.	M	4	4	Š



MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK NEWSITY =3.54

×																	
2 C		1	1	(((BE I	1	•	,		9		1 1 1		1 P 1
[X 1]		9.	n./	9.0	_	1.0	1.1	1.2	•	1.4	1.5	1.6	1.7		1.9	2.	0
1	•	f I	1	1 1	! !	1	1	ş	1 1	•	•	1	1	1)) }
	. 0	C												0	2	S	
	0.	c												, M	0	9	
	0	.										0	80	7	4	M	
	U	c.	٠.		Ċ,				0	0	c	55.5	46.3	43.4	42.1	41.	
3.4	0	<u>.</u>	u	c		0		0				5	?	÷	0	0	4
	0	c C			0				0	رما •	4	+	0	0	•	0	9
	0.							•	5	3	0	6	60	60	00	0	
	0			0				2	2	6	80	80	8	a)	8	8	
	0				0.			42.8	38.7	37.5	37.1	37.1	37.3	37.6	37.9	38.	
39	0	<u>.</u>	0.	0		0	43.2	Œ	9	•	9	9	9	7	7.	©	
	(,	,	f	Ł	i	U	ı	,	,	,	r	r	
4	• 0	·			0	0		•	55.5	4.00	62.0	30.0	20.4		0.10		
		:			ċ		'n	4	4	4	ņ		0	•		-	
		o o			о О	4	3	3	M	4	4	r.	J.	•	•	~	
		<u>.</u>		5	3	2	?	5	δ,	~) •	4	'n.	5	9	•	1	
4	0	ċ		33.7	31.6	31.4	31.7	2	ò	3	4	4	٠. دي	_	•	1	2
-			r.	0	0	0		•	2	3	4	4	5	•	Ś	1	₩.
			-	6	0	-	c		2	3	m	4	5	5	•	~	
	0		28.1	28.1	28.7	29.62	30.4	31.3	32.2	33.0	33.8	34.5	35.2	35.8	36.4	37.	
		1	ć	7	00	0	-	÷	2	2	M	4.	5	5	%	~	
_	28.2	•	5.	•	7.	•	0	÷	-	۶.	8	4	5.	'n		9	
r O	4	4	īζ.	Ś	7	Œ	0	-		~	M	4	7	5	ć	9	0
	`	Μ.	4	ζ.	7	cc.	0	_	•	N.	2	4	4	J.	\$	9	_
	· -	. M.	4	5	7	00	0	_		2	8	4	4	3	¢	40	-
		~	4	2.	7	20	0	0	٠,	~	M :	4	4		•	S	
	20.5	22.2	23.9	25.4	26.9	28.8	29.3	30.4	31.5	32.4	33.3	34.1	34.8		36.2	36.	

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =3.75

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARG COVER FACTOR AND BETA

YARN BULK DENS:TY =4.00

1. 1. 1. 1. 1. 1. 1. 1.	0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8						1	1	(A)	1	•					•	1 6
11. 11. 11. 11. 11. 11. 11. 11. 11. 11.	10. 10. 10. 10. 10. 10. 10. 10. 10. 10.	0.0		•		0	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	0 1	- t	
n. n.<	n. n.<	1	5 6 8 1	1 1 1	1	1) 			c	C						0
n. n.<	n. n.<	=		с С	c				• •								٠ د
n. n.<	n. n.<	=	•		. 0										0		• a
n. n.<	0. 0. 0. 0. 0. 60.8 49.7 46.4 4. 0. 0. 0. 0. 0. 60.8 49.7 46.4 4.0 0. 0. 0. 0. 0. 0. 48.7 45.4 44.0 48.7 45.4 44.0 0. 0. 0. 0. 0. 0. 48.7 42.2 44.0 48.7 45.2 44.0 0. 0. 0. 0. 0. 0. 47.6 42.9 41.4 40.8 40.6 40.7 40.7 0. 0. 0. 0. 0. 48.7 42.9 41.4 40.8 40.6 40.7 40.7 0. 0. 0. 0. 0. 48.7 42.0 39.8 39.0 38.9 39.0 38.9 39.0 38.9 39.0 38.9 39.0 38.9 39.0 38.9 38.7 38.0 38.0 38.0 38.0 38.0 38.0 38.0 38.0		ت	·	· c									ċ	'n,		טע
n. n.<	n. n. n. n. n. 60.8 49.7 46.4 46.0 n.	<u> </u>	· c	- 0										è	-	•	•
n. n.<	n. n.<	• :2	·	• =	•	•					ı			c	<	4	*
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 63. 47.9 46.5 43.1 42.5 42.2 42.2 0. 0. 0. 0. 0. 0. 47.6 42.9 41.4 40.8 40.6 40.7 40.9 41.4 0. 0. 0. 0. 0. 0. 0. 0. 47.6 42.9 41.4 40.8 40.6 40.7 40.9 41.4 0. 0. 0. 0. 0. 0. 0. 0. 47.6 42.9 41.4 40.8 40.6 40.7 40.9 41.4 0. 0. 0. 0. 0. 0. 0. 0. 48.7 42.9 41.4 40.8 40.6 40.7 40.8 40.8 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	0. 0. 0. 0. 0. 0. 0. 0. 0. 63.5 47.9 44.5 43.1 42.5 0. 0. 0. 0. 0. 63.5 47.9 44.5 43.1 42.5 0. 0. 0. 0. 0. 0. 0. 47.6 42.9 41.4 40.8 40.6 41.4 0. 0. 0. 0. 0. 0. 0. 47.6 42.9 41.4 40.8 40.6 40.7 0. 0. 0. 0. 0. 0. 48.7 42.2 41.4 40.8 40.6 40.7 0. 0. 0. 0. 0. 48.7 42.0 39.8 39.9 39.8 39.9 40.1 0. 0. 0. 0. 0. 48.7 42.0 39.8 39.0 38.9 39.3 39.7 0. 0. 0. 0. 48.3 38.5 37.3 37.1 37.3 37.6 38.9 39.3 39.3 0. 0. 0. 0. 48.2 38.1 37.3 37.1 37.3 37.6 38.1 38.6 39.3 0. 0. 0. 0. 48.2 38.1 37.3 37.1 37.3 37.6 38.1 38.6 39.1 0. 0. 0. 48.2 38.1 36.4 36.1 36.3 36.9 37.2 37.7 38.3 38.8 0. 0. 0. 0. 48.2 38.1 35.4 36.1 36.3 36.9 37.2 37.7 38.3 38.8 0. 0. 0. 0. 48.2 38.1 38.4 36.1 36.3 36.9 37.2 37.9 38.8 0. 0. 0. 0. 0. 48.2 38.1 33.8 34.7 35.3 35.9 36.6 37.2 37.9 38.8 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	c			· C					.0			_ a	> u	• •	P.	M
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 744 47.5 43.7 42.2 41.6 41.4 41.5 41.4 1.0. 1.1. 0. 0. 0. 0. 0. 0. 744 47.5 43.7 42.2 41.6 41.4 41.5 41.4 11.6 11.6	n. n.<	• o c	 : c			0.				•	0 .	10	D 4	. M	. ~	~	2
0. 0. 0. 0. 0. 0. 0. 0. 47.4 42.9 41.4 40.8 40.7 40.7 40.9 41.11 0. 0. 0. 0. 0. 0. 48.7 42.4 40.5 39.9 39.8 39.9 40.1 40.4 40.8 40.8 0.0 0. 0. 0. 0. 48.7 42.4 40.5 39.9 39.8 39.9 40.1 40.4 40.8 40.8 0.0 0. 0. 0. 52.5 42.0 39.8 39.0 38.9 39.3 39.7 40.1 40.4 40.8 0.0 0. 0. 78.7 42.1 37.0 38.2 38.9 39.3 39.7 40.1 40.4 40.8 0.0 0. 0. 43.3 38.5 37.3 37.4 37.2 37.6 38.9 39.3 39.8 40.2 0.0 0. 0. 43.3 38.5 37.3 37.3 37.5 37.6 38.9 39.3 39.8 40.2 0.0 0. 0. 48.2 38.1 36.4 36.7 37.2 37.7 38.3 38.8 39.4 39.9 99.9 0.0 0. 48.2 38.1 36.4 36.7 37.2 37.7 38.3 38.8 39.4 39.9 99.9 0.0 0. 40.9 35.1 34.2 34.7 35.3 35.9 36.6 37.2 37.7 38.3 38.8 39.4 39.9 0.0 0. 40.9 35.1 34.2 34.7 35.3 35.9 36.9 37.2 37.9 38.5 39.1 39.6 0.0 0. 40.9 35.1 34.2 34.2 34.9 35.6 36.4 37.0 37.7 38.4 39.1 39.9 0.0 0.0 37.8 31.1 31.8 32.7 33.8 34.6 35.2 36.9 37.5 38.9 38.9 39.9 39.9 37.6 31.9 37.8 31.1 31.8 32.7 33.5 34.2 35.1 35.9 36.9 37.5 38.0 38.7 39.1 39.7 57.9 38.7 38.0 38.7 39.1 57.7 57.9 38.7 39.1 39.7 57.7 57.7 57.8 37.7 57.7 57.7 57.7 57.7 57.7 57.7 57.7	0. 0. 0. 0. 0. 0. 0. 0. 47.6 42.9 41.4 40.8 40.6 40.7 4.7 6 42.9 41.4 40.8 40.6 40.7 4.7 6 42.9 41.4 40.8 40.6 40.7 4.7 6 42.9 41.4 40.8 40.6 40.7 40.8 40.8 40.8 41.4 40.8 40.8 40.8 41.4 40.8 40.8 40.8 41.4 40.8 40.8 41.4 40.8 40.8 41.4 40.8 40.8 41.4 40.8 40.8 41.4 41.8 41.8 41.4 41.8 41.8 41.8 41				0	0.					٠ ر ب	. ~		•	+	*	• •=1
n. n.<	n. n. n. n. n. 48.7 42.4 40.5 39.9 39.8 39.0 38.9 39.3 39.7 n. n. n. n. n. n. 48.7 42.4 40.5 39.9 39.8 39.1 39.3 39.7 n. n. n. n. n. n. n. 22.5 42.0 39.8 39.0 38.9 38.5 38.9 38.5 38.9 n. n. n. n. 78.7 42.1 37.3 37.1 37.3 37.6 38.1 38.6 39.1 38.6 37.2 37.7 38.3 38.8 n. n. n. 48.2 38.1 36.4 37.3 35.7 35.7 35.7 35.7 35.3 35.7 35.9 36.6 37.2 37.7 38.3 38.8 n. n. n. n. 38.5 35.7 35.1 35.3 35.7 35.3 35.9 36.9 37.2 37.9 38.5 n. n. n. 38.5 35.7 35.1 35.3 35.3 35.9 36.9 37.2 37.9 38.2 n. 36.5 32.4 33.1 33.8 34.6 35.2 36.9 36.2 36.9 37.0 37.7 38.2 n. 36.5 32.4 33.1 33.8 34.6 35.2 36.9 36.0 36.8 37.5 38.1 n. 36.5 37.2 37.9 38.2 n. 36.5 37.2 37.9 38.2 n. 36.5 37.2 37.9 38.2 n. 36.5 37.2 37.9 36.8 37.9 36.8 37.9 35.9 36.8 37.9 35.9 36.8 37.7 35.8 36.8 37.7 35.8 36.8 37.7 35.8 36.8 37.7 35.9 36.8 37.7 35.9 36.8 37.7 35.9 36.8 37.7 35.9 36.8 37.7 35.9 36.8 37.7 35.9 36.8 37.7 35.9 36.8 37.7 35.9 36.8 37.7 35.8 36.8 37.7 35.8 36.8 37.7 35.9 36.8 3	0	0	<u>.</u>						1 .	0		0		Ö	ô	÷
0. 0. 0. 0. 0. 48.7 42.4 40.5 39.9 39.8 39.9 40.1 40.4 40.5 40.0 0. 0. 0. 0. 52.5 42.0 39.8 39.0 38.9 39.1 39.3 39.7 40.1 40.6 0. 0. 0. 0. 78.7 42.1 37.0 38.2 38.0 38.5 38.9 39.3 39.7 40.1 40.5 0. 0. 0. 0. 0. 43.3 38.5 37.3 37.1 37.3 37.5 38.1 38.6 39.1 39.6 40.0 0. 0. 0. 48.2 38.1 36.4 37.3 37.1 37.3 37.2 37.7 38.3 38.8 39.4 39.9 40.0 0. 0. 0. 0. 48.2 38.1 36.4 37.2 37.7 38.3 38.8 39.4 39.9 6 40.0 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	0. 0. 0. 0. 0. 0. 0. 48.7 42.4 40.5 39.9 39.8 39.9 40.1 0. 0. 0. 0. 52.5 42.0 39.8 39.0 38.9 39.1 39.3 39.7 0. 0. 0. 0. 78.7 42.1 37.0 38.2 38.2 38.5 38.9 39.3 0. 0. 0. 43.3 38.5 37.3 37.1 37.3 37.6 38.1 38.6 39.1 0. 0. 48.2 38.1 36.4 36.1 36.3 36.9 37.2 37.7 38.3 38.8 0. 0. 0. 48.2 38.1 36.4 36.1 36.3 36.9 37.5 38.1 38.6 0. 0. 40.9 35.1 34.2 34.2 34.7 35.3 35.9 36.9 37.5 38.1 38.5 0. 36.9 32.4 32.1 33.6 34.2 34.9 35.6 36.4 37.0 37.7 38.4 0. 36.9 32.4 32.1 33.6 34.2 34.9 35.6 36.4 37.0 37.7 38.4 0. 36.9 37.9 30.8 31.1 31.8 32.7 33.5 34.4 35.2 36.0 36.8 37.5 38.1 0. 57.2 27.5 28.5 28.7 35.8 31.9 36.8 35.7 36.8 36.6 37.3 38.0 0. 57.2 27.5 28.5 28.7 35.8 31.9 30.0 31.1 32.1 33.1 33.1 34.0 34.9 35.7 36.5 37.2 38.0 0. 57.2 27.5 28.5 28.7 35.8 31.9 30.0 31.1 32.1 33.1 33.1 34.0 34.9 35.7 36.5 37.2 38.0 0. 57.2 27.5 28.5 29.7 35.8 31.9 32.9 33.9 34.8 35.7 36.5 37.2 38.0 0. 57.2 27.5 28.5 28.7 35.8 31.9 32.9 33.9 34.8 35.7 36.5 37.2 38.0 0. 57.2 27.5 28.5 29.7 35.8 31.9 32.9 33.9 34.8 35.7 36.5 37.7 37.9 37.9 37.9 37.9 37.9 37.9 37.9	0	c	0.						•		4					
1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	1.			ē	c		, C	6	8	3	0	0	ر ص ر	0 0	o o	0 6	
1.	1.		E C	• G				5	3	6	0 0	&	> a	· α		•	0
1. n. n. n. n. 43.3 58.5 57.2 57.2 57.7 58.3 38.8 39.4 39.9 10. n. n. n. n. 48.2 38.1 36.4 36.1 36.3 36.7 37.2 37.7 38.3 38.8 39.4 39.9 10. n. n. 38.5 38.1 36.4 36.1 36.3 36.9 37.5 38.1 38.5 39.2 39.8 10. n. n. 38.5 35.7 35.1 35.3 35.7 35.9 36.6 37.2 37.9 38.5 39.1 39.6 10. n. 94.7 35.0 37.2 34.7 35.3 35.9 36.4 37.0 37.7 38.4 39.0 39.9 10. n. 36.5 32.4 35.1 33.8 34.2 34.9 35.6 36.4 37.0 37.7 38.4 39.0 39.9 10. n. 36.5 37.9 30.8 37.5 38.2 38.9 39.9 10. n. 36.5 37.9 30.8 37.5 38.2 38.8 39.1 10. n. 36.5 37.5 38.1 38.7 39.1 10. n. 20.1 28.4 29.1 30.0 31.1 31.8 32.1 33.1 34.8 35.1 35.9 35.6 35.2 36.0 38.5 39.8 10. 20.1 28.4 29.1 30.0 31.1 32.1 32.1 34.8 35.7 35.8 35.6 37.2 38.0 38.5 39.8 10. 20.1 28.4 29.1 30.0 31.1 32.1 37.9 32.9 33.8 34.7 35.6 35.4 37.2 38.0 38.6 39.8 10. 20.1 28.4 27.5 27.5 27.9 38.6 31.7 32.8 33.8 34.7 35.6 35.4 37.1 37.9 38.5 39.	1.	 			0		18.7	0	~ r	00 r	ח מ	0 -			6	•	0
1. n. n. n. 38.5 35.7 35.1 35.3 35.7 36.3 36.9 37.5 38.1 38.5 39.2 39.8 0. n. n. n. 38.5 35.7 35.1 35.3 35.9 36.6 37.2 37.9 38.5 39.1 39.6 0. n. n. 36.9 35.1 34.2 34.7 35.3 35.9 36.6 37.2 37.9 38.5 39.1 39.6 0. n. 0. 4n.9 35.1 33.6 34.2 34.9 35.6 36.4 37.0 37.7 38.4 39.0 39.9 0. n. 36.5 32.4 32.1 33.8 34.6 35.4 36.2 36.9 37.6 38.2 38.9 39.9 0. n. 36.5 37.9 30.8 31.1 31.8 32.7 33.5 34.4 35.2 36.9 36.7 57.6 38.2 38.8 39.0 0. n. 5.2 29.8 29.8 31.1 31.8 32.7 33.5 34.4 35.2 36.9 36.7 57.4 38.1 38.7 39.0 0. n. 29.1 28.4 29.1 30.0 31.1 32.1 33.1 34.0 34.9 35.8 35.6 37.2 38.0 38.6 39.6 39.7 27.5 27.5 28.5 29.7 30.8 31.9 32.9 33.9 34.8 35.6 36.4 37.2 38.0 38.6 39.6 39.7 27.7 26.9 27.8 30.6 31.7 32.8 33.8 34.7 35.6 36.4 37.2 37.9 38.6 39.7 27.7 26.9 27.8 30.6 31.7 32.8 33.7 34.6 35.5 36.4 37.1 37.9 38.5 39.	1. n. n. n. 38.5 35.7 35.1 35.3 35.7 36.9 37.5 38.1 38.6 0. n. n. n. 38.5 35.7 35.3 35.9 36.6 37.2 37.9 38.5 0. n. n. n. 38.5 35.7 34.2 34.7 35.3 35.9 36.6 37.2 37.9 38.5 0. n. 0. 4n.9 35.1 34.2 34.2 34.9 35.6 36.4 37.0 37.7 38.5 0. n. 36.5 32.4 32.1 33.6 34.6 35.4 36.2 36.9 37.6 38.5 0. n. 36.5 32.4 32.1 33.8 34.6 35.4 36.2 36.9 37.6 38.5 0. n. 36.5 31.9 30.8 31.1 31.8 32.7 33.5 34.4 35.2 36.0 36.8 37.5 38.0 0. n. 24.1 28.4 29.1 30.8 31.4 32.4 33.3 34.2 35.1 35.9 36.7 35.6 37.3 38.0 0. 24.1 28.4 29.1 30.8 31.1 32.1 33.1 34.0 34.9 35.8 36.6 37.2 38.6 16.4 27.2 27.5 28.5 29.7 30.8 31.7 32.8 33.8 34.7 35.6 36.4 37.7 37.6 4.4 25.1 26.4 27.7 30.8 31.6 32.7 33.7 34.6 35.5 36.4 37.1 37.4 25.1 26.1 26.4 27.8 29.1 30.4 31.6 32.7 33.7 34.6 35.5 36.4 37.1 37.4 25.1 26.1 26.4 27.8 29.1 30.4 31.6 32.7 33.7 34.6 35.5 36.4 37.1 37.	0	C	0		0	ა. ლი	· 0				7	7	80	60	•	٠.
0. n. n. n. 38.5 35.7 35.1 35.3 35.7 36.9 37.5 38.1 30.3 37.2 37.9 38.5 39.1 39.6 0. n. n. n. n. 34.2 34.2 34.7 35.3 35.9 36.6 37.2 37.9 38.5 39.1 39.6 0. n. 0. 4n.9 35.1 33.2 34.7 35.3 35.9 36.6 37.2 37.9 38.5 39.1 39.0 0. n. 94.7 35.0 33.1 33.6 34.2 34.9 35.6 36.4 37.0 37.7 38.4 39.0 39.0 0. n. 36.5 32.4 32.1 33.6 34.6 35.4 36.2 36.9 37.6 38.2 38.9 39.0 0. n. 36.5 37.9 30.8 31.1 31.8 32.7 33.5 34.4 35.2 36.0 36.8 37.5 38.2 38.8 39.0 0. n. 20.1 28.4 29.1 31.4 32.4 33.3 34.2 35.1 35.9 36.7 37.4 38.1 38.7 39.0 0. n. 20.1 28.4 29.1 30.0 31.1 32.1 33.1 34.0 34.9 35.8 35.6 37.2 38.0 38.5 39.6 39.6 27.2 27.5 28.5 31.7 32.9 33.9 34.8 35.7 36.5 37.2 38.0 38.6 39.6 39.6 27.2 27.9 28.7 30.6 31.7 32.9 33.8 34.7 35.6 36.4 37.2 37.9 38.5 39.6 29.7 26.4 37.7 37.9 38.5 39.7 27.9 38.5 39.6 27.7 27.9 38.5 39.7 27.9 38.5 39.7 27.8 37.7 27.8 37.7 35.5 36.4 37.7 37.9 38.5 39.6 39.7 27.8 37.7 37.9 38.5 39.8 39.8 37.7 35.8 37.1 37.9 38.5 39.8 39.8 37.7 35.8 37.1 37.9 38.5 39.8 39.8 37.1 37.9 38.5 39.8 39.8 37.1 37.9 38.5 39.8 39.8 37.1 37.9 38.5 39.8 39.8 39.8 37.1 37.9 38.5 39.8 39.8 37.1 37.9 38.5 39.8 39.8 37.1 37.9 38.5 39.8 39.8 37.1 37.9 38.5 39.8 39.8 37.1 37.9 38.5 39.8 39.8 37.1 37.9 38.5 39.8 39.8 37.1 37.9 38.5 39.8 39.8 39.8 37.1 37.9 38.5 39.8 39.8 37.1 37.9 38.5 39.8 39.8 39.8 37.1 37.9 38.5 39.8 39.8 37.1 37.9 38.5 39.8 39.8 39.8 37.1 37.9 38.5 39.8 39.8 37.1 37.9 38.5 39.8 37.1 37.9 38.5 37.1 37.9 38.5 39.8 37.1 37.9 38.5 39.8 37.1 37.9 38.5 39.8 37.1 37.9 38.5 39.8 37.1 37.9 38.5 39.8 37.1 37.9 38.5 39.8 37.1 37.9 37.1 37.9 38.5 39.8 37.1 37.9 38.5 39.8 37.1 37.9 38.5 37.7 37.9 38.5 39.8 37.1 37.9 38.5 39.8 37.1 37.9 38.5 39.8 37.1 37.9 38.5 39.8 37.1 37.9 38.5 39.8 37.1 37.9 38.5 39.8 37.1 37.9 38.5 39.8 37.1 37.9 38.5 39.8 37.1 37.9 38.5 39.8 37.1 37.9 38.5 39.8 37.1 37.9 38.5 39.8 37.1 37.9 38.5 39.8 37.1 37.9 38.5 39.8 37.1 37.9 38.5 39.8 37.1 37.9 38.5 39.8 37.1 37.9 38.5 39.8 37.1 37.9 38.5 39.8 37.1 37.9 38.5 39.8 37.1 37.1 37.9 38.5 37.1 37.9 38.5 39.8 37.1 37.1 37.9 38.5 39.8 37.1 37.1 37.9 38.5 37.1 37.1	0. n. n. n. 38.5 35.7 35.1 35.3 35.7 36.3 36.9 37.5 38.1 30.8 10. n. 0. 4n.9 35.1 34.2 34.2 34.7 35.3 35.9 36.6 37.2 37.9 38.9 0. n. 94.7 35.0 33.2 33.1 33.6 34.2 34.9 35.6 36.4 37.0 37.7 38.9 0. n. 36.5 32.4 32.1 33.8 34.2 34.9 35.6 36.4 37.0 37.7 38.9 0. n. 36.5 32.4 32.1 33.8 34.2 34.6 35.4 36.2 36.9 37.6 38.9 0. n. 36.5 31.9 30.8 31.1 31.8 32.7 33.5 34.4 35.2 36.0 36.8 37.5 38.0 0. n. 29.1 28.4 29.1 30.0 31.1 32.1 33.1 34.0 34.2 35.1 35.9 36.7 37.4 38.0 0. 29.1 28.4 29.1 30.0 31.1 32.1 33.1 34.0 34.9 35.7 36.5 37.2 38.0 0. 29.1 26.9 28.7 30.8 31.9 32.9 33.9 34.8 35.7 36.5 37.2 38.0 0. 20.1 26.9 28.1 30.6 31.7 32.8 33.8 34.7 35.6 36.4 37.1 37.4 25.1 26.5 37.8 31.6 32.7 33.7 34.6 35.5 36.4 37.1 37.8 25.1 25.1 26.5 37.1 37.1 37.1 25.1 25.1 26.1 27.8 27.1 37.1 37.1 37.1 37.1 37.1 37.1 37.1 3	٥.	· c	ċ		20	7 · 0	Ċ	•						0	0	a
0. 0. 40.9 35.1 34.2 34.2 34.9 35.6 36.4 37.7 38.4 39.0 39.9 0.0 0. 0. 40.9 35.2 33.1 33.6 34.9 35.6 36.4 37.0 37.7 38.4 39.0 39.9 0.0 0. 0. 36.5 32.4 32.1 33.8 34.2 34.9 35.2 36.9 37.6 38.2 38.9 39.9 0. 0. 36.5 32.4 32.1 31.8 32.7 33.5 34.4 35.2 36.0 36.8 37.5 38.2 38.8 39.0 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	0.	<u></u>				00	5	ις.		r. 1	, u	. v		7 0		9	
0. n. 94./ 35.0 33.2 33.1 53.8 34.6 35.4 36.2 36.9 37.6 38.2 38.9 39.8 n. 36.5 31.9 30.8 32.4 33.1 33.8 34.6 35.4 36.2 36.9 37.6 38.2 38.8 39.8 n. 36.5 31.9 30.8 31.1 31.8 32.7 33.5 34.4 35.2 36.0 36.8 37.5 38.2 38.8 39.8 n. 5 31.9 30.8 31.1 31.8 32.7 33.5 34.2 35.1 35.9 36.7 57.4 38.1 38.7 39.8 n. 5 57.2 29.8 59.8 59.8 59.8 59.8 59.8 59.1 50.0 31.1 32.1 33.1 34.0 34.9 35.8 36.6 37.3 38.0 38.7 39.8 n. 5 57.5 27.5 58.0 38.6 39.8 n. 5 57.0 57.9 38.6 39.8 n. 5 57.0 57.9 58.5 59.8 57.0 57.9 58.5 59.8 57.0 57.9 58.5 59.8 57.0 57.9 58.5 59.8 57.0 57.9 58.5 59.8 57.0 57.9 58.5 59.8 57.0 57.9 58.5 59.8 57.0 57.9 58.5 59.8 57.0 57.9 58.5 59.8 57.0 57.9 58.5 59.8 57.0 57.9 58.5 59.8 57.0 57.9 58.5 59.8 57.0 57.9 57.9 58.5 59.8 57.0 57.9 57.9 57.9 57.9 57.9 57.9 57.9 57.9	0. n. 94./ 35.0 33.2 33.1 53.5 54.6 35.4 36.2 36.9 37.6 38.6 n. 36.5 32.4 32.1 33.8 34.6 35.4 36.2 36.9 37.6 38.6 n. 36.5 32.4 32.1 33.8 34.2 35.2 36.0 36.8 37.5 38.6 n. 57.6 31.9 30.8 31.1 31.8 32.7 33.5 34.2 35.1 35.9 36.7 57.4 38.0 n. 52.2 29.8 29.8 31.4 32.4 33.3 34.2 35.1 35.9 36.7 57.4 38.0 n. 59.1 28.4 29.1 30.0 31.1 32.1 33.1 34.0 34.9 35.8 35.6 37.3 38.6 1.4 27.2 27.5 27.5 28.5 29.7 35.8 31.9 32.9 33.9 34.8 35.7 36.5 37.2 38.6 5.2 24.0 26.9 28.1 29.4 30.6 31.7 32.8 33.8 34.6 35.5 36.4 37.1 37.4 55.1 26.4 27.8 29.1 30.4 31.6 32.7 33.7 34.6 35.5 36.4 37.1 37.8		·	0	ċ	5	4	er i	•	. 4	י ע		7	7.	ω •	39.	•
0. 57.5 31.9 30.8 31.1 31.8 32.7 33.5 34.4 35.2 36.0 36.8 37.5 38.2 38.8 59.9 0. 57.6 31.9 30.8 31.1 31.8 32.7 33.5 34.2 35.1 35.9 36.7 37.4 38.1 38.7 39.0 0. 52.2 29.8 29.8 20.8 31.4 32.4 33.3 34.2 35.1 35.9 36.7 37.3 38.0 38.7 39.0 0. 52.2 29.8 29.1 30.0 31.1 32.1 33.1 34.0 34.9 55.8 36.6 37.3 38.0 38.5 39.0 0. 59.1 20.1 28.5 29.7 30.8 31.9 32.9 33.9 34.8 35.7 36.5 37.2 38.0 38.6 39.6 37.2 27.5 27.5 28.1 29.4 30.6 31.7 32.8 33.8 34.7 35.6 36.4 37.7 37.9 38.5 39.6 5.2 26.0 26.4 37.1 37.9 38.5 39.6 39.6 37.7 37.8 37.7 33.7 34.6 35.5 36.4 37.1 37.9 38.5 39.6 39.6 39.6 37.7 37.8 37.7 37.8 38.7 34.6 35.5 36.4 37.1 37.9 38.5 39.6 39.6 39.6 39.7 36.8 37.7 37.8 37.7 37.9 38.5 39.8 39.8 37.7 37.8 37.7 37.8 38.7 34.6 35.5 36.4 37.1 37.9 38.5 39.8 39.8 37.7 37.8 37.7 37.8 38.5 39.8 37.7 37.8 37.7 37.8 37.7 37.8 38.7 34.6 35.5 36.4 37.1 37.9 38.5 39.8 39.8 37.7 37.8 37.7 37.8 38.5 39.8 37.7 37.8 37.7 37.8 37.7 37.8 37.7 37.8 37.7 37.8 37.7 37.8 38.5 38.8 38.8 37.7 37.8 37.7 37.8 37.7 37.8 37.7 37.8 38.8 37.7 37.8 38.5 38.8 37.7 37.7 37.8 37.7 37.8 38.8 38.8	0. 56.5 52.4 52.7 53.5 54.4 55.2 36.0 36.8 37.5 38.3 0. 57.6 31.9 31.4 32.4 53.3 34.2 35.1 36.9 36.7 57.4 38. 0. 57.2 29.8 29.8 31.4 32.4 33.1 34.2 35.9 36.5 37.3 38. 0. 59.1 20.0 31.1 32.9 33.9 34.8 35.7 36.5 37.2 38. 10. 57.2 27.5 28.4 37.7 37.2 38. 10. 56.9 28.1 29.7 30.6 31.7 32.8 34.7 35.6 36.4 37.2 37.2 10. 26.9 27.8 29.1 31.7 32.7 33.7 34.6 35.5 36.4 37.1 37.1 37.1 10. 26.9 27.8 29.1 31.6 32.7 33.7 34.6 35.5 36.4 37.1 37.1 37.1 37.1 37.1 37.1 37.1 <t< td=""><td>0</td><td>٥.</td><td>4</td><td>it.</td><td>m) (m</td><td>٠ •</td><td>٠ ا</td><td>. ~</td><td>4</td><td>5</td><td></td><td>9</td><td>7.</td><td>8</td><td>38.</td><td>0 0</td></t<>	0	٥.	4	it.	m) (m	٠ •	٠ ا	. ~	4	5		9	7.	8	38.	0 0
0. 57.6 31.9 30.8 31.1 31.0 32.4 33.3 34.2 35.1 35.9 36.7 57.4 38.1 38.7 39.0 5.2 29.8 29.8 29.8 20.8 31.4 32.4 33.1 34.0 34.9 55.8 36.6 37.3 38.0 38.7 39.0 5.1 28.1 28.1 32.1 32.1 33.1 34.0 34.9 55.8 36.6 37.3 38.0 38.7 39.0 5.1 27.2 27.5 28.5 29.7 30.8 31.9 32.9 33.9 34.8 35.7 36.5 35.2 37.2 38.0 38.6 39.6 5.2 24.0 26.9 28.1 29.4 30.6 31.7 32.8 33.8 34.7 35.6 36.4 37.2 37.9 38.5 39.6 5.4 37.1 37.9 38.5 39.6 32.7 33.7 34.6 35.5 36.4 37.1 37.9 38.5 39.6	0. 57.5 29.8 29.8 30.5 31.4 32.4 33.3 34.2 35.1 35.9 36.7 57.4 38.0. 57.2 29.8 29.8 29.8 31.4 32.4 33.3 34.2 35.1 35.9 36.5 37.3 38.0. 29.1 28.4 29.1 30.0 31.1 32.1 33.1 34.0 34.9 35.8 35.6 37.3 38.6 5.4 27.2 27.5 27.5 28.5 29.7 30.8 31.9 32.9 33.9 34.8 35.7 36.5 37.2 38.6 5.1 26.9 28.1 29.4 30.6 31.7 32.8 33.8 34.7 35.6 36.4 37.2 37.4 4.4 25.1 26.4 27.8 29.1 30.4 31.6 32.7 33.7 34.6 35.5 36.4 37.1 37.	<u>.</u>	•	'n.	ċ	· v	· v	, ,	 . M		5	4	9	7	တ	38.	•
0. 52.2 29.8 29.8 30.5 31.4 32.4 33.3 34.2 35.1 35.9 36.7 57.3 38.0 38.7 39.8 59.1 28.4 29.1 30.0 31.1 32.1 33.1 34.0 34.9 55.8 36.6 37.3 38.0 38.7 39.8 5.4 27.2 27.5 28.5 29.7 35.8 31.9 32.9 33.9 34.8 35.7 36.5 37.2 38.0 38.6 39.6 57.2 27.9 28.1 29.4 30.6 31.7 32.8 33.8 34.7 35.6 36.4 37.2 37.9 38.5 39.6 5.4 27.1 37.9 38.5 39.6 5.4 37.1 37.9 38.5 39.6 5.4 37.1 37.9 38.5 39.6 5.4 37.1 37.9 38.5 39.6 5.4 37.1 37.9 38.5 39.6 5.4 37.1 37.9 38.5 39.6 5.4 37.1 37.9 38.5 39.6 5.4 37.1 37.9 38.5 39.6 5.4 37.1 37.9 38.5 39.6 5.4 37.1 37.9 38.5 39.6 5.4 37.1 37.9 38.5 39.6 5.4 37.1 37.9 38.5 39.6 5.4 37.1 37.9 38.5 39.6 35.5 36.4 37.1 37.9 38.5 39.6 38.5 38.5 38.5 39.6 37.8 37.1 37.9 38.5 38.5 39.6 37.8 37.1 37.9 38.5 38.5 38.5 38.5 38.5 38.5 38.5 38.5	0. 53.2 29.8 29.8 30.5 31.4 32.4 33.3 34.2 35.1 35.9 36.7 37.4 38.8 29.1 28.4 29.1 30.0 31.1 32.1 33.1 34.8 34.9 35.8 36.6 37.3 38.8 27.2 27.5 27.5 28.5 29.7 30.8 31.9 32.9 33.9 34.8 35.7 36.5 37.2 38.6 57.2 27.5 27.5 28.1 29.4 30.6 31.7 32.8 33.8 34.7 35.6 36.4 37.7 37.4 4.4 25.1 26.4 27.8 29.1 30.4 31.6 32.7 33.7 34.6 35.5 36.4 37.1 37.8	0	7.	-	ċ	÷	• -	•	>				,	٢	a	a r	2
0. 29.1 28.4 29.1 30.0 31.1 32.1 33.1 34.8 35.7 36.5 37.2 38.0 38.6 39.8 6.4 27.2 27.2 28.0 38.6 39.8 6.4 27.2 27.5 28.5 29.7 30.8 31.9 32.9 33.8 34.7 35.6 36.4 37.2 37.2 37.9 38.6 39.6 37.2 26.9 28.1 29.4 30.6 31.7 32.8 33.8 34.7 35.6 36.4 37.1 37.9 38.5 39.6 37.1 26.9 28.1 30.4 31.6 32.7 33.7 34.6 35.5 36.4 37.1 37.9 38.5 39.	n. 29.1 28.4 29.1 30.0 31.1 32.1 33.1 34.8 35.7 36.5 37.2 38.8 6.7 27.2 27.5 28.5 57.2 38.6 57.2 27.5 27.5 27.5 28.5 29.7 30.8 31.9 32.9 33.8 34.7 35.6 36.4 37.2 37.5 6.3 24.6 26.9 28.1 29.4 30.6 31.7 32.8 33.8 34.6 35.5 36.4 37.1 37.4 24.5 25.1 26.4 27.8 29.1 30.4 31.6 32.7 33.7 34.6 35.5 36.4 37.1 37.	C	~	20.	0	-		?	W 1	4.	ν. <	Մ Մ	· «	, ,		0 00	30
6.4 27.2 27.5 28.5 29.7 36.8 31.7 32.8 33.8 34.7 35.6 36.4 37.2 37.9 38.6 39. 6.1 24.8 26.9 28.1 29.4 38.6 31.7 32.8 33.7 34.6 35.5 36.4 37.1 37.9 38.5 39.	6.4 27.2 27.5 28.5 29.7 36.8 31.9 32.8 33.8 34.7 35.6 36.4 37.2 37.6 5.1 24.1 26.9 28.1 29.4 30.6 31.7 32.8 33.8 34.7 35.6 36.4 37.1 37.4 31.6 32.7 33.7 34.6 35.5 36.4 37.1 37.4 4.4 25.1 26.4 27.8 29.1 30.4 31.6 32.7 33.7 34.6 35.5 36.4 37.1 37.		· ·	28.	6	0	•	ς.	m (4 h	\$ 4			7	œ	38.	39.
6. 2 26.0 26.3 78.1 27.2 30.4 31.6 32.7 33.7 34.6 35.5 36.4 37.1 37.3 36.2 37.	4.4 25.1 26.4 27.8 29.1 30.4 31.6 32.7 33.7 34.6 35.5 36.4 37.1 3/.	· ::	. 67	27.	œ c	6 0	5 0	• س پ اسم	· ~	, w	4	5	9	۲.	7.	3 30	
	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	ė.		200	c r	. 0			· C	3	4	ľ.	9	7	•	000	• • • •

MAXIMUM FILLING COVER FACTORS (K2) IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =4.13

WARP

COVER FACTOR (K1)		1 0	1 0	10		í •	1.1	1.2	1.3	1 4	1.5	1 •			4.9	6
			1					1		1	1		-		•	•
						0										
					0.	0									0	
						0							0	0	59.1	
34	.0	0		<u>-</u>		•	0	0		.	0		0		0	
_					C								5	0	•	
				0	0						0	4	8	5	*	
					0	<u>د</u>			0	•	4	•	5	*	3	
-					0.					4	•	4	3	2	2	-
36	0	.	٠.	C	0	0	0.	0.	6.95	46.1	43.3	42.3	41.9	41.8	41.9	4
					c			5	r.	0		•	•	-	-	
							•						, I C			
								4 4 5	40	40.4	40.5	0 0				1
						•	•	•			•			•	•	
						4	;	•	0	, D	SC.	·	·	•	ò	
4	0	0	0.			41.9	•	7	7	7	ċ	90	0	•	0	
					4	7		9	•	7.		80	60	6	•	
				. 9	7	Š	5	5	\$	•	7	8	80	6	6	
				0	5	4	4	5	5	Ġ.	7.	7	00	6	•	4
			-	4	3	جى .	4	4	5.		c	7	80	8	•	_
6	=	<u>.</u>	35.7	35.5	32.3	32.8	33.5	34.3	35.1	5	36.7	37.5	38.2	38.8	39.5	
	=	·	•	•	·	2	8	4	4	5	•	7	•	90	•	
	•	0	0	<u>-</u>	0	+	?	3	4	υ.		7	6	8	0	
	54.0	2.67	28.7	4.66	30.4	31.5	32.6	33.6	34.6	35.5	36.3	37.1	37.9	38.6	39.3	
	•	7	7	8	0		2	3	4	5	•	/	7.	8	0	
	9	¢	7	α,	6	•	2	3	4	ξ,	ć	7	7.	8	0	M

MAXIMUM FILLING COVER FACTORS [K2] IN TERMS OF WARP COVER FACTOR AND BETA

YARN BULK DENSITY =4.60

マドン	:		•			((BET	(ŀ	1	•	1	1
<	0.5	C	n.7	00	1	1.0	-	+	1.3	1.4	1.5	1.5	1.7	1.8	1.9	2.0
1 4			ı		0	0.		0	0 .	0	0		0		+	•
35						.							0	07.	0	4
													16.4	58	2	0
												6.69	57.	+	•	60
						0	0.	0.	0	0		57.2	50.9	48.5	47.4	46.8
39	٠ ن	٠,	<u>.</u>	0	0.							0	7.	•	•	r.
					0					6	0	•	5	5	5	5
41								•	4	6	÷	4	4	4	4	4
								00	6	5.	4	21	3	~	*	4
						0		51.1	45.1	43.3	42.7	42.6	42.7	43.0	43,3	43.7
4 4	0.		c	0	0			4	2	+	7	+	5	2	3	3
	ပ	c.		c		6	40	ò	÷	0	•	+	+	2	2	M
						7.	-	0	6	0	ċ	0	-	+	2	3
			0	0	9	41.6	39.4	38.9	39.1	39.5	40.0	40.5	41.1	41.7	42.2	45.8
					8	œ	œ	œ	œ	6	ò	0	0	-	ċ	ò
64		C				7.	7.	7	9	80	•	0	0	-	- i	ò
5.0	<u>.</u>		C	6	9	5	ý	Ġ	7.	00	o,	,	0	+		2
			₹	ŗ.	4	5	5	•	7	ю •	œ	6	0	•	+	ċ
			÷	3	3	4	5	9	7	7	œ	о́.	0	H	•	<u>.</u>
	С	ò		32.5	33.1	53.8	34.9	35.8	36.8	37.7	38.6	0	40.5	40.9	-	•
54		53.6		•	ò	3	4	5	÷	7	oc.	٥.	0	0		ċ
_	£)	-	-	+	~	~>	4	u's	•	7	00	·	ċ	0	-	ò
56	51.4	< x >	29.4	30.5	31.7	33.0	34.1	35.3	36.3	37.3	38.2	39.1	30.9	40.7	41.4	42.1
	/	7.	·	Ċ	-	ċ	4	S.	•	7.	œ	o.	0	0	÷	iv
	·	· c	α.	6	·	2	۲.	5	÷	7.	a.	6	0		+	Š

DOCUMENT CO (Security classification of title, body of abstract and indexi	NTROL DATA - R&D		he overall report is classified:	
1 ORIGINATING ACTIVITY (Corporate author)			T SECURITY CLASSIFICATION	
U. S. Army Natick Laboratories		Unc	classified	
C. S. AIMY NACICE LADORSCOPLES	ļ	26 GROUP		
3 PEPORT TITLE				
Design tables for textile fabrics:	Tables of sol	utions	of equations for	
maximum weavability fabrics made f				
•				
4 DESCRIPTIVE NOTES (Type of report and inclusive dates)				
5 AUTHOR(S) (Last name, first name, initial)				
Weiner, Louis I.				
6 REPORT DATE	74 TOTAL NO OF PA	GE5	76 NO OF REFS	
August 1966	330		6	
84 CONTRACT OR GRANT NO.	98 ORIGINATOR'S RE	PORT NUM	BER(S)	
	67-20-CM			
b PROJECT NO	0/=20=0F1			
c 1013001A91A	AP OTHER REPORT N	(S) (A mir	other numbers that may be provided	
9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report) TS_144				
đ	TS-144			
10 AVAILABILITY LIMITATION NOTICES	<u> </u>		N. C.	
Distribution of this document is w	mlimited. Rele	asa to	CFSTI is authorized.	
	•			
11 SUPPLEMENTARY NOTES	12 SPONSORING MILIT	ARY ACTI	VITY	
	U. S. Army N	atick I	aboratories	
	Natick, Mass	achuset	ts 01760	
12 ADSTRACT				
13 ABSTRACT				

This report contains in tabular form the solutions of the maximum weavability equations for the plain, exford, 3- and 4-harness twills, and 5-harness sateen in terms of warp and filling cover factors and yarn number ratio (Beta) for fabrics made from any fiber species and from blends. The tables are set up for yarn bulk densities ranging from 0.54 to 4.6; this includes fibers as light as polyethylene and as heavy as stainless steel. Supplementary tables are provided giving yarn bulk densities (assuming a standard packing coefficient of 0.59) for all of the commercial fibers and for blends of the most important commercial. Tibers in increments of 5% ranging from 5% to 95% blend composition.

14 KEY WORDS		LINKA	LINK B	LINK
· ·		HOLE AT	ROLE	HOLE A
Meaving Equations Fibers (Natural) Fibers (Synthetic) Twills Sateen Tables		8 8 1 2 2 0		• •
	INSTRUCTIONS	,		

- I. ORIGINATING ACTIVITY: Enter the name and address of the contractor, subcontractor, grantee, Department of Defense activity or other organization (corporate author) issuing the report.
- 2a. REPORT SECURITY CLASSIFICATION: Enter the overall security classification of the report. It dicate whether "Restricted Data" is included. Marking is to be in accordance with appropriate security regulations.
- 2b. GROUP: Automatic downgrading is specified in DoD Directive 5200.10 and Armed Forces Industrial Manual. Enter the group number. Also, when applicable, show that optional markings have been used for Group 3 and Group 4 as authorized.
- 3. REPORT TITLE: Enter the complete report title in all capital letters. Titles in all cases should be unclassified. If a meaningful title cannot be selected without classification, show title classification in all capitals in parenthesis immediately following the title.
- 4. DESCRIPTIVE NOTES: If appropriate, enter the type of report, e.g., interim, progress, summary, annual, or final. Give the inclusive dates when a specific reporting period is covered.
- 5. AUTHOR(S): Enter the name(s) of author(s) as shown on or in the report. Enter last name, first name, middle initial. If military, show rank and branch of service. The name of the principal author is an absolute minimum requirement.
- 6. REPORT DATE: Enter the date of the report as day, month, year, or month, year. If more than one date appears on the report, use date of publication.
- 7a. TOTAL NUMBER OF PAGES: The total page count should follow normal pagination procedures, i.e., enter the number of pages containing information.
- 7b. NUMBER OF REFERENCES: Enter the total number of references cited in the report.
- 8a. CONTRACT OR GRANT NUMBER: If appropriate, enter the applicable number of the contract or grant under which the report was written.
- 8b, 8c, 8c, 8c, 8d. PROJECT NUMBER: Enter the appropriate military department identification, such as project number, subproject number, system numbers, task number, etc.
- 9a. ORIGINATOR'S REPORT NUMBER(S): Enter the official report number by which the document will be identified and controlled by the originating activity. This number must be unique to this report.
- 9b. OTHER REPORT NUMBER(S): If the report has been assigned any other report numbers (either by the originator or by the sponsor), also enter this number(s).

- 10. AVAILABILITY/LIMITATION NOTICES. Enter any limitations on further dissemination of the report, other than those imposed by security classification, using standard statements such as:
 - "Qualified requesters may obtain copies of this report from DDC."
 - (2) "Foreign announcement and dissemination of this report by DDC is not authorized."
 - (3) "U. S. Government agencies may obtain copies of this report directly from DDC. Other qualified DDC users shall request through
 - (4) "U. S. military agencies may obtain copies of this report directly from DDC. Other qualified users shall request through
 - (5) "All distribution of this report is controlled. Qualified DDC users shall request through

If the report has been furnished to the Office of Technical Services, Department of Commerce, for sale to the public, indicate this fact and enter the price, if known

- 11. SUPPLEMENTARY NOTES: Use for additional explanatory notes.
- 12. SPONSORING MILITARY ACTIVITY: Enter the name of the departmental project office or laboratory sponsoring (paying for) the research and development. Include address.
- 13. ABSTRACT: Enter an abstract giving a brief and factual summary of the document indicative of the report, even though it may also appear elsewhere in the body of the technical report. If additional space is required, a continuation sheet shall be attached.

It is highly desirable that the abstract of classified reports he unclassified. Each paragraph of the abstract shall end with an indication of the military security classification of the information in the paragraph, represented as (TS) (S), (C), or (U).

There is no limitation on the length of the abstract. However, the suggested length is from 150 to 225 words.

14. KEY WORDS: Key words are technically meaningful terms or short phrases that characterize a report and may be used as index entries for cataloging the report. Key words must be selected so that no security classification is required. Idenfiers, such as equipment model designation, trade name, military project code name, geographic location, may be used as key words but will be followed by an indication of technical context. The assignment of links, rules, and weights is optional.